Fill in this information to identify the case:

Debtor ArcherDX, LLC

United States Bankruptcy Court for the: _____ District of New Jersey (State)

Case number 24-11364

Official Form 410
Proof of Claim

04/22

Read the instructions before filling out this form. This form is for making a claim for payment in a bankruptcy case. Do not use this form to make a request for payment of an administrative expense. Make such a request according to 11 U.S.C. § 503.

Filers must leave out or redact information that is entitled to privacy on this form or on any attached documents. Attach redacted copies or any documents that support the claim, such as promissory notes, purchase orders, invoices, itemized statements of running accounts, contracts, judgments, mortgages, and security agreements. **Do not send original documents;** they may be destroyed after scanning. If the documents are not available, explain in an attachment.

A person who files a fraudulent claim could be fined up to $500,000, imprisoned for up to 5 years, or both. 18 U.S.C. §§ 152, 157, and 3571.

Fill in all the information about the claim as of the date the case was filed. That date is on the notice of bankruptcy (Form 309) **that you received.**

Part 1: Identify the Claim

1. **Who is the current creditor?**
   National Cancer Center
   Name of the current creditor (the person or entity to be paid for this claim)
   Other names the creditor used with the debtor _____

2. **Has this claim been acquired from someone else?**
   ☑ No
   ☐ Yes. From whom? _____

3. **Where should notices and payments to the creditor be sent?**
   Federal Rule of Bankruptcy Procedure (FRBP) 2002(g)

   Where should notices to the creditor be sent?
   National Cancer Center
   6-5-1 Kashiwanoha
   Kashiwa-city, Chiba 277-8577, Japan

   Contact phone +81-4-7133-1111
   Contact email alliance@ml.res.ncc.go.jp

   Where should payments to the creditor be sent? (if different)
   Contact phone _____
   Contact email _____

   Uniform claim identifier for electronic payments in chapter 13 (if you use one):
   _

4. **Does this claim amend one already filed?**
   ☑ No
   ☐ Yes. Claim number on court claims registry (if known) _____ Filed on _____ MM / DD / YYYY

5. **Do you know if anyone else has filed a proof of claim for this claim?**
   ☑ No
   ☐ Yes. Who made the earlier filing? _____

24113642404150000000000003

Part 2: Give Information About the Claim as of the Date the Case Was Filed

6. **Do you have any number you use to identify the debtor?**

☑ No

☐ Yes. Last 4 digits of the debtor's account or any number you use to identify the debtor: ___ ___ ___ ___

7. **How much is the claim?** $ 72,110.98 . **Does this amount include interest or other charges?**

☑ No

☐ Yes. Attach statement itemizing interest, fees, expenses, or other charges required by Bankruptcy Rule 3001(c)(2)(A).

8. **What is the basis of the claim?**

Examples: Goods sold, money loaned, lease, services performed, personal injury or wrongful death, or credit card.

Attach redacted copies of any documents supporting the claim required by Bankruptcy Rule 3001(c).

Limit disclosing information that is entitled to privacy, such as health care information.

Services performed

9. **Is all or part of the claim secured?**

☑ No

☐ Yes. The claim is secured by a lien on property.

Nature or property:

☐ Real estate: If the claim is secured by the debtor's principle residence, file a *Mortgage Proof of Claim Attachment* (Official Form 410-A) with this *Proof of Claim*.

☐ Motor vehicle

☐ Other. Describe: _____

Basis for perfection: _____

Attach redacted copies of documents, if any, that show evidence of perfection of a security interest (for example, a mortgage, lien, certificate of title, financing statement, or other document that shows the lien has been filed or recorded.)

Value of property: $_____

Amount of the claim that is secured: $_____

Amount of the claim that is unsecured: $_____ (The sum of the secured and unsecured amount should match the amount in line 7.)

Amount necessary to cure any default as of the date of the petition: $_____

Annual Interest Rate (when case was filed)_____%

☐ Fixed

☐ Variable

10. **Is this claim based on a lease?**

☑ No

☐ Yes. **Amount necessary to cure any default as of the date of the petition.** $_____

11. **Is this claim subject to a right of setoff?**

☑ No

☐ Yes. Identify the property: _____

24113642404150000000000003

12. **Is all or part of the claim entitled to priority under 11 U.S.C. § 507(a)?**

A claim may be partly priority and partly nonpriority. For example, in some categories, the law limits the amount entitled to priority.

☑ No

☐ Yes. *Check all that apply:*

	Amount entitled to priority
☐ Domestic support obligations (including alimony and child support) under 11 U.S.C. § 507(a)(1)(A) or (a)(1)(B).	$_____
☐ Up to $3,350* of deposits toward purchase, lease, or rental of property or services for personal, family, or household use. 11 U.S.C. § 507(a)(7).	$_____
☐ Wages, salaries, or commissions (up to $15,150*) earned within 180 days before the bankruptcy petition is filed or the debtor's business ends, whichever is earlier. 11 U.S.C. § 507(a)(4).	$_____
☐ Taxes or penalties owed to governmental units. 11 U.S.C. § 507(a)(8).	$_____
☐ Contributions to an employee benefit plan. 11 U.S.C. § 507(a)(5).	$_____
☐ Other. Specify subsection of 11 U.S.C. § 507(a)(__) that applies.	$_____

* Amounts are subject to adjustment on 4/01/25 and every 3 years after that for cases begun on or after the date of adjustment.

13. **Is all or part of the claim entitled to administrative priority pursuant to 11 U.S.C. 503(b)(9)?**

☑ No

☐ Yes. Indicate the amount of your claim arising from the value of any goods received by the debtor within 20 days before the date of commencement of the above case, in which the goods have been sold to the Debtor in the ordinary course of such Debtor's business. Attach documentation supporting such claim.

$_____

Part 3: Sign Below

The person completing this proof of claim must sign and date it. FRBP 9011(b).

If you file this claim electronically, FRBP 5005(a)(2) authorizes courts to establish local rules specifying what a signature is.

A person who files a fraudulent claim could be fined up to $500,000, imprisoned for up to 5 years, or both. 18 U.S.C. §§ 152, 157, and 3571.

Check the appropriate box:

☐ I am the creditor.

☑ I am the creditor's attorney or authorized agent.

☐ I am the trustee, or the debtor, or their authorized agent. Bankruptcy Rule 3004.

☐ I am a guarantor, surety, endorser, or other codebtor. Bankruptcy Rule 3005.

I understand that an authorized signature on this *Proof of Claim* serves as an acknowledgement that when calculating the amount of the claim, the creditor gave the debtor credit for any payments received toward the debt.

I have examined the information in this *Proof of Claim* and have reasonable belief that the information is true and correct.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on date 04/15/2024
MM / DD / YYYY

/s/Emily Westheimer on behalf of National Cancer Center
Signature

Print the name of the person who is completing and signing this claim:

Name: Emily Westheimer on behalf of National Cancer Center
First name Middle name Last name

Title _____

Company _____
Identify the corporate servicer as the company if the authorized agent is a servicer.

Address

Contact phone _____ Email _____

KCC ePOC Electronic Claim Filing Summary

For phone assistance: Domestic (866) 967-0263 | International (310) 751-2663

Debtor:
24-11364 - ArcherDX, LLC
District:
District of New Jersey, Trenton Division

Creditor:
National Cancer Center
6-5-1 Kashiwanoha
Kashiwa-city, Chiba, 277-8577
Japan
Phone:
+81-4-7133-1111
Phone 2:
Fax:
Email:
alliance@ml.res.ncc.go.jp

Has Supporting Documentation:
Yes, supporting documentation successfully uploaded
Related Document Statement:

Has Related Claim:
No
Related Claim Filed By:

Filing Party:
Authorized agent

Other Names Used with Debtor:

Amends Claim:
No
Acquired Claim:
No

Basis of Claim:
Services performed

Last 4 Digits:
No

Uniform Claim Identifier:

Total Amount of Claim:
72,110.98

Includes Interest or Charges:
No

Has Priority Claim:
No

Priority Under:

Has Secured Claim:
No
Amount of 503(b)(9):
No
Based on Lease:
No
Subject to Right of Setoff:
No

Nature of Secured Amount:
Value of Property:
Annual Interest Rate:
Arrearage Amount:
Basis for Perfection:
Amount Unsecured:

Submitted By:
Emily Westheimer on behalf of National Cancer Center on 15-Apr-2024 11:09:08 a.m. Eastern Time
Title:
Company:

VN: 43FD0839FF19B6D6F26B5236EBFAE89A

MASTER RESEARCH AGREEMENT

This Master Research Agreement ("Agreement") is entered into between National Cancer Center, a National Research and Development Agency doing business at 5-1-1 Tsukiji, Chuo-ku, Tokyo 104-0045, Japan ("NCC"), and ArcherDX, LLC, a subsidiary of Invitae Corporation, a Delaware limited liability corporation having a place of business at 2477 55th Street, Boulder, CO 80301 (hereinafter referred to as "Archer") (NCC and Archer together the "Parties" and each individually a "Party") on the latest of the dates on the signature page set forth below ("Effective Date").

WHEREAS, Archer is a genomics analysis NCC working to develop and commercialize research products and to develop in vitro diagnostic with the goal to optimize therapy and enable cancer monitoring across sample types;

WHEREAS, NCC is a National Research and Development Agency that seeks to contribute to generalizable knowledge regarding [genomics in personalized medicine];

WHEREAS, the Parties desire to collaborate to develop and engage in various research projects of mutual interest and benefit from time to time that relate to the study of [genomics] and that may include Research use of De-identified Data or Biospecimens as such terms are defined in Appendix A of this Agreement (each, a "Research Project" and together the "Research Projects"), all in accordance with the terms and conditions of this Agreement, and pursuant to which the Parties will each contribute ideas, time, and effort.

NOW, THEREFORE, in consideration of the foregoing background, which is hereby incorporated into this Agreement by this reference, and for other good and valuable consideration, the sufficiency and receipt of which is hereby acknowledged, NCC and Archer hereby agree as follows:

AGREEMENT

1. **Definitions**. Definitions for terms used in this Agreement are set out in Exhibit A. Additional defined terms are set out in the body of this Agreement.

2. **Performance of Research Project**.

    a. Statements of Work. During the term of this Agreement, the Parties agree to have discussions to explore and seek to identify topics of mutual interest to pursue as a Research Project and to negotiate in good faith to undertake various Research Projects. The Parties will complete a Statement of Work for each individual Research Project that sets forth the specific design of and terms and conditions for conducting the Research Project, the form of which is attached as Exhibit B (each, a "Statement of Work"), each of which is hereby incorporated by reference.

a. Conduct of Research Projects. Each of Archer and NCC will use reasonable efforts to conduct those activities for which it is responsible under the Statement of Work, and perform each of its respective obligations under this Agreement.

b. Appointment of Principal Investigator. Prior to the execution of a Statement of Work, one Party shall appoint a scientist, academic, health care practitioner, subject matter expert, or other individual having the expertise and meeting the qualifications, training, and other criteria that the Parties may specify in the applicable Statement of Work ("Principal Investigator Qualifications") to be responsible for the supervision and conduct of the Research Project, as may be set forth in the applicable Statement of Work ("Principal Investigator"). Such Principal Investigator will also be the "principal investigator" as such term is defined under Applicable Laws with respect to any Research Projects to be conducted under the Statement of Work. If, for any reason, the Principal Investigator for a Party is unable to complete his or her obligations for a Research Project as set forth in the applicable Statement of Work, that Party shall use reasonable efforts to identify a proposed successor who meets the applicable Principal Investigator Qualifications and provide written notice to the other Party of the proposed successor, such information to include the individual's contact information. The other Party shall have fifteen (15) calendar days to consent to the proposed successor, such consent not to be unreasonably withheld. In the event the other Party declines to provide consent in accordance with the foregoing, the Parties may terminate the applicable Statement of Work.

c. Appointment of Sub-Investigator. Prior to the execution of a Statement of Work, the Party who does not provide the Principal Investigator shall designate an individual to be responsible for the supervision and conduct of that Party's obligations under the Research Project and to coordinate with the Principal Investigator in performing the Research Project, all in accordance with the applicable Statement of Work ("Sub-Investigator").

d. Additional Personnel. Each Party may designate one or more additional personnel to support its performance of its obligations under any Statement of Work, subject to this Agreement, Applicable Laws, and any other limitation communicated by the other Party from time to time. Each Party shall ensure that such personnel who are subcontractors are subject to and bound by all applicable terms of this Agreement, including, without limitation, all terms related to confidentiality. The Principal Investigator, the Sub-investigator, and the personnel described in this Section may collectively be referred to as the Personnel.

e. Costs of Research. Archer will provide the financial support for the Research described in the Statement of Work as described in the budget set forth in the Statement of Work (the "**Budget**"). If, at any time, a Party has reason to believe that the cost of the Study will exceed the amount set forth in the Budget, such Party will notify the other Party, proposing a revised budget for completion of the Research Project, and the Parties will discuss whether to revise the budget. **I**t is

agreed and understood that in the event the Parties agree to undertake any additional collaborative Research Project they shall attach the budget for any additional Research Project as an additional Exhibit.

3. **Compliance with Laws**.

   a. Compliance with Healthcare Laws. The Parties acknowledge and agree that the nature of each Research Project and the nature of Applicable Laws with respect to each Research Project may vary. Each Party will comply with Applicable Laws in performing under this Agreement, including, as applicable, (a) the Health Insurance Portability and Accountability Act of 1996 (42 USC § 1320d) as amended by the Health Information Technology for Economic and Clinical Health Act of 2009 (Pub. L. No. 111-5), and their implementing regulations as amended from time to time (collectively, "HIPAA"), (b) any law rule, regulation, declaration, decree, directive, statute, or other enactment, order, mandate, or resolution issued or enacted by any national, state, county, municipal, local, territorial, or other government or bureau, court, commission, board, authority, or agency setting forth privacy, security, breach notification, data subject rights, or other requirements or protections for personal data, personally identifiable information, sensitive health information, or similar terms (collectively with HIPAA, the "Data Protection Laws"), (c) any law, rule, or regulation setting forth restrictions, prohibitions, or other requirements regarding the conduct of genetic testing or use, transfer, disclosure, storage, or retention of genetic information or Biospecimens (collectively, "Genetic Privacy Laws"); (d) the Clinical Laboratory Improvement Amendments of 1988, as amended, and its implementing regulations ("CLIA") and any similar state laws, rules, regulations, guidelines, or requirements (collectively, "Clinical Laboratory Laws"); (e) the U.S. Federal Food, Drug and Cosmetic Act, as amended, the Public Health Service Act, as amended, and the FDA regulations that implement either of the foregoing, as amended from time to time (collectively, "FDA Laws"), and (f)(i) Titles XVIII and XIX of the Social Security Act, the Federal False Claims Act, the Federal Anti-Kickback Law, the Stark Law, 21 CFR Part 11, any and all analogous or similar federal, state, and international laws, and any and all amendments to the foregoing; (ii) any and all other current or future federal, state, and international health care laws applicable to this Agreement and any and all amendments to the foregoing; and (iii) any and all statutory citations, regulations, policies, procedures, guidance, instructions, and requirements issued by any governmental authority under or related to the foregoing (i) and (ii) (collectively, "Healthcare Laws").

   b. Pathways under Data Protection Laws. The Parties will work together in good faith to identify and implement appropriate pathways under Data Protection Laws, Genetic Privacy Laws, and Clinical Laboratory Laws for any collection, use, disclosure, or transfer of any Data or Biospecimens under a Research Project. Without limiting the generality of the foregoing, to the extent a Party is providing De-identified Data or Biospecimens to the other Party, the providing Party is

responsible for ensuring any such Data or Biospecimens are appropriately De-identified in accordance with Applicable Laws, and the Receiving Party is responsible for not attempting to re-identify the De-identified Data or Biospecimens.

c. Review by Institutional Review Board. The Parties agree to obtain review and approval of any Research involving Human Subjects from a duly constituted institutional review board ("IRB") organized and operating in accordance with Applicable Law and any other IRB whose review and approval of a Research Project is required under Applicable Law or NCC policies and procedures prior to undertaking any Research Project, as may be set forth in the applicable Statement of Work, and to comply with the directives and the terms of any approval, determination, or waiver of an IRB with jurisdiction over the applicable Research Project.

d. No Inducement. The Parties acknowledge and agree that none of the Research Projects contemplated here or allocation of ownership of Research Discoveries described here, is intended to be, and will not be construed as, either express or implied, an obligation or inducement for either Party to recommend, purchase, order, prescribe, promote, administer or otherwise support any product or service of the other Party. The ownership of any Research Discovery will not be determined in a manner that takes into account (directly or indirectly) the volume or value of any referrals between the Parties, and any research funding shall be in accordance with fair market value and shall be the result of an arm's length negotiation.

4. **Ownership and Publication of Research Discoveries; Intellectual Property**.

f. Ownership of Existing Intellectual Property. Each Party shall retain ownership of, and all right, title and interest in and to, their respective intellectual property, which it owns, and is in existence prior to or independent of the research activities to be performed under this Agreement.

g. Joint Ownership of Research Discoveries. The Parties shall share joint ownership of new research discoveries made pursuant to a Statement of Work under this Agreement (each, a "Research Discovery"). Each Party has the unrestricted right to use a Research Discovery for any purpose. It is expressly agreed and understood that Archer may submit any research results, data, or records produced in the course of the Research Projects to any regulatory agency, and may use such results, data or records for marketing and publicity (to the extent consistent with Sections 4(i) and 4(l) herein), and in support of its research and development, and product development activities.

h. Other Research Projects. Nothing in this Agreement will be construed to limit the freedom of Archer, NCC, or each of their respective researchers who are participants under this Agreement, from engaging in similar Research projects with Parties other than Archer or NCC.

i. Publication. The Parties expect to jointly publish the results of any Research Project. However, in the event one Party is not interested in participating in such a co-publication, then the other Party may still proceed to publish the results provided either (1) the non-publishing Party provides prior written consent to the publication, or (2) the non-publishing Party is not named or identified in the publication. Notwithstanding the foregoing, in the event either Party plans to publish the results of a Research Project separately, the publishing Party shall provide the non-publishing Party with a thirty (30) day period in advance of any proposed publication during which time the non-publishing Party may review each proposed publication to (i) determine whether the non-publishing Party will provide consent to the publication; (ii) identify potentially patentable information for filing a patent application; (iii) identify any inadvertent disclosure of the non-publishing Party's Confidential Information (as defined below) contained in the proposed publication, which Confidential Information the publishing Party shall remove; and (iv) confirm accuracy related to any statements regarding the non-publishing Party or the non-publishing Party's products, or services, business, or operations. If necessary to complete this review or to file a patent application, the publishing Party shall provide an additional review period not to exceed thirty (30) days. Any further extension will require subsequent agreement between the Parties. Authorship for publications, presentations, or other public disclosures of Research Projects conducted pursuant to this Agreement must be based on International Committee of Medical Journal Editors ("ICMJE") recommendations and will accurately acknowledge each Party's contributions to the Research Project and results being published or otherwise disclosed in accordance with prevailing academic standards, customs, and ethical research conduct. The Parties shall maintain evidence of compliance with ICMJE guidelines for authorship, and each Party shall take any comments offered by the other Party into reasonable consideration and negotiate in good faith in the event there is a dispute concerning the content of the publication.

j. Ownership of Confidential Information. The Disclosing Party owns any of its Confidential Information in the possession of the Receiving Party.

k. No Granting of Rights. Neither Party grants to the other Party any license, immunity, or other right, either directly or indirectly, by implication, estoppel, or otherwise, to any intellectual property, Existing Works, or Data owned by the other Party, and any rights and licenses with respect to a Party's intellectual property, Existing Works and/or Data shall be set forth in the Statement of Work.

l. Trademarks. Except as expressly set forth in this Agreement, nothing herein confers in either Party any rights, whether by way of ownership, license, or right to use, in any of the trademarks of the other Party. Except as permitted under Applicable Law, Archer shall not use the trademarks of NCC with NCC's prior written consent, and NCC shall not use Archer's trademarks without Archer's prior written consent. Any approved uses of Archer's trademarks shall comply with Archer usage guidelines.

m. Feedback. In the course of work performed under this Agreement and related Statements of Work, the NCC may make suggestions for enhancements or modifications to Archer products, e.g., to provide certain features or functions ("Feedback"). The Parties understand and agree that NCC is under no obligation to provide such Feedback, that such Feedback is not confidential, and that if provided, Archer shall be free to act on and use such Feedback for any purpose, including to enhance Archer products. All such enhancements or other changes to the products based on Feedback shall be solely owned by Archer.

n. Freedom of Action. Subject to each Party's obligations of confidentiality to the other Party under this Agreement, each Party is free to collaborate with other parties to achieve the same or similar objectives as those stated herein. Nothing in this Agreement limits the Parties' ability to assign its employees to other projects. Experience naturally acquired by either Party's employees (or contractors) during the course of the Parties' relationship may be utilized in its business activities, and such utilization does not violate the confidentiality obligations set forth in this Agreement.

5. **Confidential Information**.

a. Obligations. Unless as otherwise permitted in writing by the Disclosing Party, the Receiving Party shall hold in strict confidence and shall not disclose or permit the disclosure to any third party any of the Disclosing Party's Confidential Information except to the Receiving Party's directors, officers, employees, consultants, and contractors who are obligated to maintain the confidential nature of Confidential Information and who need to know Confidential Information in order for the Receiving Party to perform its obligations or exercise its rights under this Agreement.

b. Exceptions. The obligations of paragraph (a) above do not apply to the extent that the Receiving Party can demonstrate that Confidential Information (i) was publicly known prior to the time of its disclosure under this Agreement; (ii) became publicly known after its disclosure under this Agreement through means other than an unauthorized disclosure by the Receiving Party; (iii) was previously known to or independently developed or discovered by the Receiving Party without use of the Confidential Information; or (iv) is or was disclosed to the Receiving Party by a third party having no obligation of confidentiality with respect to the Confidential Information. In addition, the Receiving Party may disclose the Disclosing Party's Confidential Information to the extent required to be disclosed by law or court order, provided that the Receiving Party: (i) provides the Disclosing Party with prompt notice of such disclosure requirement if legally permitted, (ii) affords the Disclosing Party an opportunity to oppose or limit, or secure confidential treatment for such required disclosure and (iii) if the Disclosing Party is unsuccessful in its efforts pursuant to subsection (ii), discloses only that portion of the Confidential Information that the Receiving Party is legally required to disclose.

c. Return of Confidential Information. Upon the expiration or termination of this Agreement or at any other time at the request of the Disclosing Party, the Receiving Party shall return all originals, copies, and summaries of Confidential Information in the possession or control of the Receiving Party, except that the Receiving Party may retain one (1) copy of the Confidential Information solely for the purposes of monitoring its rights and obligations under this Agreement, complying with its obligations under Applicable Laws, and for Research integrity purposes as permitted by Applicable Laws.

6. **Research Project Records**. Each Party shall keep and maintain Research Project Records diligently and in sufficient detail to satisfy Applicable Laws. Each Party shall retain Research Project Records in accordance with Applicable Laws or for [three (3)] years after completion of each Research Project, whichever is longer. After the required retention period pursuant to this Section has expired, each Party shall provide the other Party sixty (60) days' written notice before destroying any Research Project Records.

7. **Representations, Warranties, Liability Limits**.

a. Mutual Representations and Warranties. Each of the Parties hereby represents and warrants to the other Party as follows:

i. As of the Effective Date, it is duly organized and validly existing under the Applicable Laws of its jurisdiction of incorporation and it has full corporate power and authority and has taken all corporate action necessary to enter into and perform this Agreement.

ii. As of the Effective Date, this Agreement is a legal and valid obligation binding upon such Party and enforceable in accordance with its terms; the execution, delivery , and performance of the Agreement by such Party does not conflict with any agreement, instrument, or understanding, oral or written, by which it is bound, nor to its knowledge as of the Effective Date violate any Applicable Law; and the person or persons executing this Agreement on such Party's behalf have been duly authorized to do so by all requisite corporate action.

iii. Each Party shall (a) not knowingly use in any capacity, in connection with the performance of its obligations under this Agreement any individual or entity who is debarred or suspended under 21 USC § 335(a) or (b) or 42 USC § 1320a-7(a), or any foreign equivalent thereof, or who is the subject of a conviction described in such section or any foreign equivalent thereof, or that is the subject of an FDA investigation or proceeding (or subject to a similar sanction of a governmental authority), or is otherwise ineligible to participate in federal healthcare programs; and (b) inform the other Party in writing immediately upon becoming aware if it or any individual or entity that is performing activities hereunder on its behalf is debarred, excluded, disqualified, suspended, or is the subject of a

conviction described in 21 USC § 335(a) or (b) or 42 USC § 1320a-7(a), or any foreign equivalent thereof, or if any action, suit, claim, investigation, or legal or administrative proceeding is pending or, to its knowledge, is threatened, relating to such debarment, exclusion, disqualification, suspension, or conviction.

iv. The personnel that each Party assigns to perform any of its obligations under this Agreement will at all times be qualified and professionally capable of performing such obligations.

v. Each Party further represents, warrants, and covenants, on behalf of itself and its Personnel, as applicable, that as of the Effective Date, and at all times during the Term of this Agreement that such Party is able to perform its duties and obligations under this Agreement without violating its policies or any other contracts or requirements to which it is subject.

b. Indemnification. Indemnification, if any, shall be set forth in the applicable Statement of Work.

c. Insurance.

i. NCC shall maintain, at its expense, insurance coverage for NCC for claims made during and after termination of the Agreement based on conduct or events having occurred during the Term of the Agreement, with policy limits as a minimum of the following: (a) General Liability (bodily injury and property damage combined: [One Million Dollars ($1,000,000) each occurrence and Three Million Dollars ($3,000,000) annual aggregate]; (b) Professional Liability: [One Million Dollars ($1,000,000) each occurrence and Three Million Dollars ($3,000,000) annual aggregate]; (c) Privacy / Cyber: [One Million Dollars ($1,000,000) each occurrence and Three Million Dollars ($3,000,000 annual aggregate)] and (d) [Clinical Trial Insurance: [One Million Dollars ($1,000,000) each occurrence and Three Million Dollars ($3,000,000) annual aggregate)]. NCC maintains the right to fulfill its insurance obligations either through the purchase of commercial insurance, through self- insurance (including direct risk retention), or through a combination of these approaches. NCC shall provide evidence of such insurance upon request.

ii. Archer shall maintain, at its expense, insurance coverage for Archer for claims made during and after termination of the Agreement based on conduct or events having occurred during the Term of the Agreement, with policy limits as a minimum of the following: (a) General Liability (bodily injury and property damage combined: [One Million Dollars ($1,000,000) each occurrence and Three Million Dollars ($3,000,000) annual aggregate]; (b) Privacy / Cyber: [One Million Dollars ($1,000,000) each occurrence and Three Million Dollars ($3,000,000 annual

aggregate)] and (c) [Clinical Trial Insurance: [One Million Dollars ($1,000,000) each occurrence and Three Million Dollars ($3,000,000) annual aggregate)]. Archer maintains the right to fulfill its insurance obligations either through the purchase of commercial insurance, through self- insurance (including direct risk retention), or through a combination of these approaches.

iii. Each Party shall provide evidence of the insurance required under this Section.

d. GENERAL DISCLAIMER OF WARRANTIES. THE PARTIES ACKNOWLEDGE AND AGREE THAT EACH RESEARCH PROJECT IS OF AN EXPERIMENTAL NATURE. ANY RESULTS OF ANY RESEARCH PROJECT AND ANY DATA, BIOSPECIMENS, OR OTHER MATERIALS PROVIDED IN CONNECTION WITH ANY RESEARCH PROJECT ARE PROVIDED “AS IS” WITHOUT WARRANTY OF ANY KIND. EXCEPT AS OTHERWISE EXPRESSLY PROVIDED HEREIN, NEITHER PARTY MAKES ANY WARRANTIES, EXPRESS OR IMPLIED, AS TO ANY MATTER WHATSOEVER, INCLUDING, WITHOUT LIMITATION, THE RESULTS OF ANY RESEARCH PROJECT OR WHETHER ANY RESULTS WILL BE OBTAINED. EXCEPT AS OTHERWISE SET FORTH HEREIN, EACH PARTY HEREBY DISCLAIMS ALL REPRESENTATIONS AND WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, ALL WARRANTIES ARISING FROM COURSE OF PERFORMANCE, COURSE OF DEALING, OR USAGE IN TRADE, NONINFRINGEMENT OF INTELLECTUAL PROPERTY RIGHTS OF EITHER PARTY OR THIRD PARTIES, CREATION, VALIDITY, ENFORCEABILITY AND SCOPE OF ANY INTELLECTUAL PROPERTY RIGHTS OR CLAIMS, WHETHER ISSUED OR PENDING, AND THE ABSENCE OF LATENT OR OTHER DEFECTS, WHETHER OR NOT DISCOVERABLE.

e. LIMITATION OF LIABILITY. EXCEPT AS EXPRESSLY SET FORTH TO THE CONTRARY IN A STATEMENT OF WORK:

i. NEITHER PARTY SHALL BE LIABLE FOR ANY, INDIRECT, PUNITIVE, INCIDENTAL, RELIANCE, SPECIAL, EXEMPLARY, CONSEQUENTIAL, OR OTHER DAMAGES SUFFERED BY THE OTHER PARTY CONCERNING ANY SUBJECT MATTER OF THIS AGREEMENT, REGARDLESS OF THE FORM OF ANY CLAIM OR ACTION (WHETHER IN CONTRACT, NEGLIGENCE, STRICT LIABILITY OR OTHERWISE), EVEN IF SUCH PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES, INCLUDING, BUT NOT LIMITED TO, DAMAGES ARISING FROM LOSS OF DATA OR DELAY OR TERMINATION OF THE RESEARCH PROJECT, OR FROM THE USE OF THE RESULTS OF ANY RESEARCH PROJECT.

ii. EACH PARTY'S ENTIRE LIABILITY FOR ALL CLAIMS IN THE AGGREGATE ARISING UNDER THIS AGREEMENT WILL NOT EXCEED THE AMOUNT OF ANY ACTUAL DIRECT DAMAGES UP TO THE AMOUNT OF $10,000 THAT IS THE SUBJECT OF THE CLAIM. THIS LIMIT APPLIES REGARDLESS OF WHY A PARTY CLAIMS DAMAGES FROM THE OTHER, INCLUDING DEFAULT, FUNDAMENTAL BREACH, NEGLIGENCE, MISREPRESENTATION, OR OTHER CONTRACT OR TORT CLAIM. THE FOLLOWING AMOUNTS, IF A PARTY IS LEGALLY LIABLE FOR THEM, ARE NOT SUBJECT TO THE ABOVE CAP: (I) DAMAGES FOR BODILY INJURY (INCLUDING DEATH), (II) DAMAGES PURSUANT TO A BREACH OF CONFIDENTIALITY, AND (III) DAMAGE TO REAL PROPERTY AND TANGIBLE PERSONAL PROPERTY.

8. **Term and Termination**.

a. Term. This agreement shall be for an initial term of two (2) years the "Term". This agreement may be terminated in accordance with the provisions of this Agreement and amended or extended by mutual written agreement.

b. Termination.

i. This Agreement or any Statement of Work under this Agreement may be terminated by Archer at any time by providing [sixty (60) days] prior written notice of such termination to NCC. For the avoidance of doubt, termination of a Statement of Work shall not result in termination of the Agreement; however, termination of the Agreement automatically terminates any and all Statements of Work.

ii. Either Party may terminate this Agreement immediately upon written notification if the other Party fails to comply with any applicable Healthcare Laws or Data Protection Laws, or fails to comply with the representations and warranties set forth in Section 6 of this Agreement.

iii. Either Party may immediately terminate this Agreement upon oral notice (promptly followed by written notice) to the other Party if any person performing such other Party's activities under the Agreement is debarred, excluded or disqualified from participation in any federal health care program;

iv. Either Party may immediately terminate a Statement of Work upon oral notice (promptly followed by written notice) to the other Party if approval for the applicable Research Project or a Party's participation therein is not granted or is revoked by the IRB with jurisdiction over such Party's participation in the Research Project;

v. Either Party may terminate this Agreement with not less than [thirty (30)] days prior written notice if the other Party: (a) becomes insolvent, is dissolved or liquidated, has a petition in bankruptcy, reorganization, dissolution, or liquidation, or similar action filed by or against it, is adjudicated as bankrupt, or has a receiver appointed for its business; or (b) makes an assignment for the benefit of creditors.

vi. Notwithstanding the foregoing, if either Party materially breaches this Agreement and/or a Statement of Work and such material breach is not cured by the breaching Party within thirty (30) days after written notice thereof from the non-breaching Party, the non-breaching Party shall have the right to terminate this Agreement and/or the relevant Statement of Work, which termination shall be effective thirty (30) days after receipt of such written notice of termination.

c. Effect of Termination: In the event this Agreement or any applicable Statement of Work is terminated before completion of any Research Project, the Parties shall comply with any and all directions of the IRB(s) with jurisdiction over the Research Project regarding the close-out of the Research Project.

d. Survivability. The provisions of Sections 1-5 shall survive any expiration or termination of this Agreement.

9. **MISCELLANEOUS PROVISIONS**.

a. Interpretation and Construction. Headings are inserted for convenience and will not affect the meaning or interpretation of this Agreement. The words “include,” “includes,” and “including” are deemed to be followed by the phrase “without limitation.” Except where the context otherwise requires, wherever used, the singular shall include the plural, the plural the signature, the use of any gender shall be applicable to all genders, and the word “or” is used in the inclusive sense (and/or). Whenever this Agreement or a Statement of Work refers to a number of days, unless otherwise specified, such number refers to calendar days. Each Party represents that it has been represented by legal counsel in connection with this Agreement and acknowledges that it has participated in the drafting hereof. In interpreting and applying the terms and provisions of this Agreement, the Parties agree that no presumption will apply against the Party that drafted such terms and provisions. Unless the context otherwise requires, countries shall include territories and protectorates thereof.

b. Governing Law and Forum. This Agreement shall be governed by, interpreted, enforced and construed in accordance with the laws of the State of California without regard to choice of law provisions. The exclusive venue shall be the courts of San Francisco County, California.

c. Notice. Any notices required or permitted under this Agreement shall be in writing, shall specifically refer to this Agreement, and shall be sent by hand,

recognized national overnight courier, confirmed facsimile transmission, confirmed electronic mail, or registered or certified mail, postage prepaid, return receipt requested, to the following addresses or facsimile numbers of the Parties:

If to NCC:
National Cancer Center East Hospital
Attn: Dr. Hideaki Bando
Department of Gastroenterology and GI Oncology
Chair of Translational Research Support Section
6-5-1 Kashiwanoha, Kashiwa-shi, Chiba 277-8577, Japan
Email: hbando@east.ncc.go.jp

With a copy to: alliance@ml.res.ncc.go.jp

If to Archer:
Archer DX, LLC, a subsidiary of Invitae Corporation
Attn: Legal Department
2477 55th Street #202
Boulder, CO 80301

With a copy to: legal@invitae.com

All notices under this Agreement shall be deemed effective upon receipt. A Party may change its contact information immediately upon written notice to the other Party in the manner provided in this Section.

e. Entire Agreement. This Agreement constitutes the entire agreement between the Parties with respect to its subject matter and supersedes all prior agreements or understandings between the Parties relating to its subject matter. This Agreement can be modified only by a written instrument signed by both Parties that references this Agreement. In the event of a conflict between the terms of this Agreement and any Statement of Work, the terms of the Statement of Work shall control.

f. Independent Contractors. For the purposes of this Agreement and all services to be provided hereunder, each Party will be, and will be deemed to be, an independent contractor and not an agent or employee of the other Party. Neither Party will have authority to make any statements, representations, or commitments of any kind, or to take any action that is binding on the other Parties, except as explicitly provided for herein or authorized in writing.

g. Statement of Work Amendment. Subsequent to both Parties' signatures of each Statement of Work, any substantive modification thereof, such as, but not limited to, a significant change to the scope of a Statement of Work, a significant change in any deliverable(s), a change to the period of performance, or a change to the total authorized funding, will require a written amendment of the Statement of Work to be signed by each Party's authorized representative.

h. Assignment. This Agreement shall be binding upon and inure to the benefit of the Parties hereto and their respective successors and permitted assigns. Neither Party may assign this Agreement or otherwise transfer all or any of its rights under this Agreement without the prior written consent of the other Party. Notwithstanding the foregoing, Archer may, upon notice but without such consent, assign or otherwise transfer this Agreement to any of its affiliates or to a successor in interest in connection with the transfer or sale of all or substantially all of its business to which this Agreement relates (whether by sale of equity or assets, merger, consolidation or otherwise). Any attempted assignment in violation of this section is void and shall constitute grounds for immediate termination of the Agreement by the non-assigning Party.

i. Use of Names. Except as set forth herein, neither Party shall use the name, insignia, symbol, trademark, trade name, or logotype, or any variation, adaptation, or abbreviation thereof, of the other Party, its directors, officers, staff, employees, agents, faculty, students, or trustees, in any promotional material or other public announcement or disclosure without the prior written consent of the other Party, which consent such other Party may withhold in its sole discretion. Neither Party any press release concerning this Agreement or any Statement of Work without the agreement of the other Party.

j. Force Majeure. A Party will not be liable for nonperformance or delay in performance (other than of obligations regarding confidentiality and payment) caused by any event reasonably beyond the control of such Party (each, a "Force Majeure Event"), including, but not limited to, wars, hostilities, revolutions, acts of terrorism, riots, civil commotion, national emergency, strikes, lockouts, unavailability of supplies, epidemics, fire, flood, earthquake, force of nature, explosion, embargo, or any other Act of God, or any law, proclamation, regulation, ordinance, or other act or order of any court, government or governmental agency, provided that the Force Majeure Event occurs without such Party's involvement or fault, was not foreseeable and could not have been prevented by ordinary prudence, and provided further that the Party seeking such relief from nonperformance makes reasonable efforts to overcome any such occurrence and promptly notifies the other Parties in writing of such circumstances.

k. Counterparts. This Agreement and any amendment hereto may be executed in counterparts and all such counterparts taken together shall be deemed to constitute one and the same instrument. If this Agreement is executed in counterparts, no signatory hereto will be bound until all the Parties named below have duly executed a counterpart of this Agreement. For purposes of executing this Agreement, a facsimile, including a PDF image delivered via email, copy of this Agreement including signed signature page(s), will be deemed an original.

l. Severability; Enforcement of Rights. If any provision of this Agreement is held to be illegal, invalid, or unenforceable under any present or future law, and if the

rights or obligations of either Party under this Agreement shall not be materially and adversely affected thereby, (a) such provision shall be fully severable, (b) this Agreement shall be construed and enforced as if such illegal, invalid, or unenforceable provision had never comprised a part hereof, (c) the remaining provisions of this Agreement shall remain in full force and effect and shall not be affected by the illegal, invalid, or unenforceable provision or by its severance herefrom, and (d) in lieu of such illegal, invalid, or unenforceable provision, there shall be added automatically as a part of this Agreement a legal, valid, and enforceable provision as similar in terms to such illegal, invalid, or unenforceable provision as may be possible and reasonably acceptable to the Parties. To the fullest extent permitted by Applicable Law, each Party hereby waives any provision of law that would render any provision hereof illegal, invalid, or unenforceable in any respect. The failure of a Party to enforce its rights under this Agreement at any time for any period will not be construed as a waiver of such rights.

[SIGNATURE PAGE FOLLOWS]

IN WITNESS WHEREOF, the parties below have executed this Master Research Agreement as of the Effective Date.

National Cancer Center

DocuSigned by:

By: _____
3FE77671AD5048D...
(Authorized Signature)

Name: Hitoshi Nakagama
(Type or Print)

Title: President

Date: 1/12/2022

ARCHERDX, LLC, A SUBSIDIARY OF INVITAE CORPORATION

By: _____
(Authorized Signature)

Name: SWAROOP ARADHYA, PHD
(Type or Print)

Title: HEAD, GLOBAL MEDICAL AFFAIRS

Date: DECEMBER 6, 2021

EXHIBIT A

Definitions

1. “Biospecimen” shall mean biological materials, including but not limited to blood, plasma, biofluids, and tissue, taken from a human being.
2. “Confidential Information” shall mean any information that is non-public, confidential, or proprietary in nature that is designated as confidential or that by its nature would reasonably be regarded as confidential.
3. “Data” shall have the meaning ascribed to it in the Statement of Work.
4. “De-identified,” including “De-identification” or “De-identify” shall mean the process of removing, coding or otherwise eliminating or concealing data elements to de-identify data in accordance with the standards set forth in 45 CFR § 164.514 and/or any successor regulation, or to otherwise render data anonymized in accordance with the GDPR if and to the extent the GDPR is applicable. Data that is “De-identified” is data that has undergone De-identification.
5. “Disclosing Party” shall mean a Party disclosing its Confidential Information to the other Party.
6. “Existing Works” shall mean any materials and software owned or licensed to such Party (other than such materials and software licensed by the other Party) that are existing on the Effective Date or that are developed during the Term outside the scope of this Agreement, and any modifications.
7. “FDA” means the U.S. Food & Drug Administration.
8. “GDPR” shall mean the General Data Protection Regulation (EU 2016/679).
9. “Human Subject” or “Subject” means a living human individual about whom Personnel obtains Data or Biospecimens through intervention or interaction with the individual, or a living individual whose Protected Health Information is being reviewed or analyzed as part of a Research Project.
10. “Archer” shall mean ArcherDX, LLC, a subsidiary of Invitae Corporation and its subsidiaries and affiliates.
11. “Parties” shall mean Archer and NCC.
12. “Personnel” shall mean any individual designated by a Party in accordance with this Agreement to participate in the performance of a Research Project on behalf of such Party.”
13. “Protected Health Information” (“PHI”) has the meaning set forth under HIPAA.
14. “Receiving Party” shall mean a Party that is receiving Confidential Information of the other Party.
15. “Research” shall have the meaning set forth at 45 CFR 164.501 or any successor regulation.
16. “Research Project” shall have the meaning ascribed to it in the Recitals.
17. “Research Project Records” shall mean any and all data (including Data), work product, results, protocols, IRB submissions and determinations, consent forms, authorization forms, and any other data, information, or materials generated or made available to perform any Research Project.
18. “Sub-Investigator” shall mean any individual member of the Research Project team designated and supervised by a particular Principal Investigator to perform Research-related procedures.

EXHIBIT B

Statement of Work

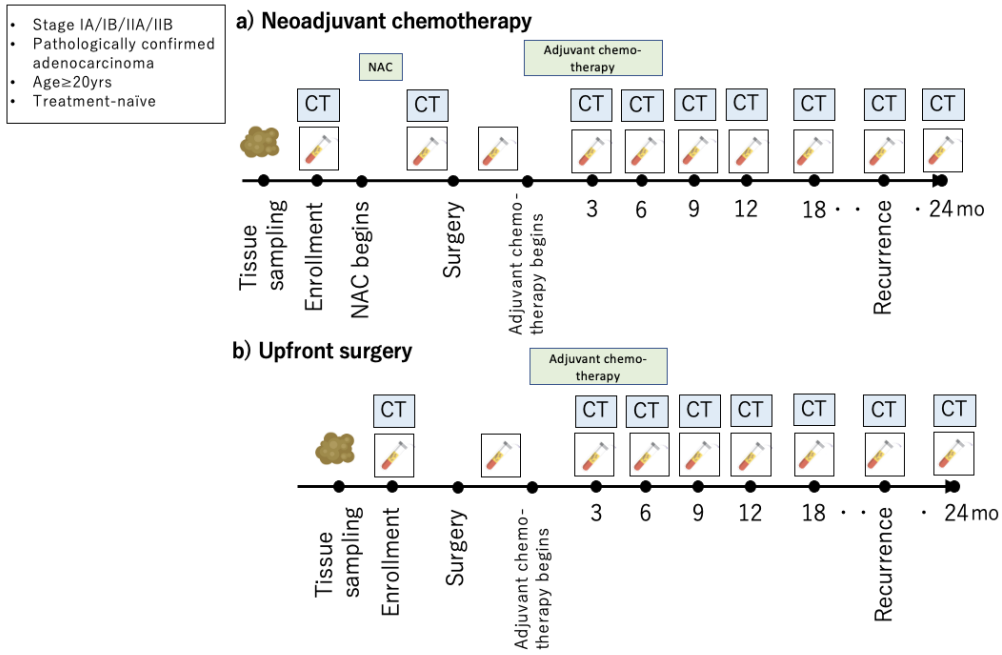
This Statement of Work (SOW) is entered into between ArcherDX, LLC, a subsidiary of Invitae Corporation. ("Archer") and National Cancer Center Hospital East. ("NCC") pursuant to a Master Research Agreement dated xx, 2021 ("Agreement"). In the event of any inconsistency between this SOW and the Agreement, the Agreement shall control, except to the extent the Parties specifically agree otherwise, in this SOW.

Title: Multicenter study of circulating tumor DNA in patients with Pancreatic Cancer using a personalized panel (**ARTEMIS-PC**)

Study 1: Feasibility study of personalized panel of the Archer PCM™ assay using tumor samples obtained by EUS-FNA/FNB in patients with resectable pancreatic adenocarcinoma.

Study type	Prospective observational study
Rationale	● Pancreatic cancer (PC) is one of the most lethal malignancies, is the third leading cause of cancer deaths in United States, and fourth in Japan[1]. Despite improvements in surgical techniques and chemotherapy, pancreatic cancer remains a fatal disease, with a global 5-year survival rate of less than 10%[2]. The majority of patients with pancreatic cancer present with locally advanced or metastatic disease, and less than 20% of patients are suitable for resection at the time of diagnosis[3]. ● Surgical resection is still considered the only potentially curative treatment for PC. Following surgical resection, adjuvant chemotherapy is typically administered given the demonstrated survival benefit. In Japan, adjuvant S-1 is typically administered for 6 months[4]. Recently, it has been reported by Japanese investigators (Prep-02/JSAP-05) that neoadjuvant chemotherapy with gemcitabine plus S-1 prolonged overall survival as compared to upfront surgery in patients with resectable PC[5]. Therefore, neoadjuvant chemotherapy is generally used in clinical practice. Unfortunately, even in surgically resected PC patients, about 80% recur after curative surgery[6]. Thus, early detection of PC patients and identification of factors that may predict tumor recurrence and prognosis are needed to improve clinical outcomes in pancreatic cancer. Although the most representative tumor marker, CA19-9 has been serving to diagnose PC and detect postoperative recurrence for decades, its sensitivity and specificity are not satisfactory in diagnosis and predicting tumor relapse[7]. Therefore, novel method that can detect at an early stage and timely predict postoperative tumor recurrence is urgently needed in PC. ● Circulating tumor DNA (ctDNA) has the potential to be used as a prognostic and predictive biomarker in patients with resectable PC[8]. However, detection of ctDNA can be challenging in patients with

	low-volume, localized tumors, where plasma contains very few ctDNA. Hence, patient-specific cancer assays using tumor genotype information obtained by tumor tissue offer the possibility to increase the sensitivity of ctDNA in early stage PC. Archer PCM™ is a custom-designed ctDNA assay tracking at least 50 tumor-specific variants, and demonstrated a sensitivity of 89% for ctDNA at a mutant allele frequency of 0.008%, specificity was 100% in patients with non-small cell lung cancer[9] ● Endoscopic ultrasound-guided fine needle aspiration (EUS-FNA) or fine needle biopsy (FNB) is preferred approach to obtain tumor sample in resectable PC. Although EUS-FNA/FNB is highly accurate and reliable for determining malignancy, it is unknown whether EUS-FNA/FNB can obtain sufficient tumor tissue for molecular analysis in resectable PC[10-12]. ● In this study, we evaluate the feasibility of the personalized panel of the Archer PCM™ assay using tumor samples obtained by EUS-FNA/FNB in patients with resectable PC. We also examine the potential clinical utility of ctDNA as a predictive marker, including pre- and post-operative samples.
Objectives	To evaluate creation rate of personalized panel of Archer PCM™ in patients with resectable PC. To evaluate association between pre-operative/post-operative ctDNA result and clinical outcomes. **Primary endpoint** - Success rate of WES assays and selections of personalized genes using tumor tissue specimens obtained by EUS-FNA/FNB. **Secondary endpoints** - Rate of ctDNA positivity for each cancer stage (stage IA-stage IIB) before neoadjuvant chemotherapy (NAC) and 4 weeks after surgery. - Association of preoperative ctDNA before NAC and overall survival. - Association of postoperative ctDNA before adjuvant chemotherapy (AC) and overall survival - Proportion of ctDNA positivity at the time of recurrence detected by diagnostic imaging. - Association of serum tumor marker levels and recurrence free survival (RFS), ctDNA positivity and RFS at the timepoints before NAC and before AC. - Differences in OS and PFS between the patients in whom the personalized panel can be created and those in whom it can not be created - To investigate the lead time from ctDNA detection to recurrence detected by diagnostic imaging

Study design	Prospective observational study that evaluates the creation rate of personalized panel in patients who have resectable PC.
Study design schematic	

Timing of blood sampling:

a) Neoadjuvant chemotherapy

Blood samples will be collected before neoadjuvant chemotherapy, after neoadjuvant chemotherapy/prior to surgery, and postoperative/before adjuvant chemotherapy. After surgery, blood samples will be collected every 3 months until 12 months. After 12months, blood samples will be collected every 6 months until 24 months (3, 6, 9, 12, 18, 24 months). If disease progresses to unresectable stage after neoadjuvant chemotherapy, blood samples at the time of disease progression becomes the last test, and subsequent blood sampling will be discontinued. In addition, the blood sample will be collected at the time of recurrence. If the test is performed within 1 month (including the same day of the previous month), it can be omitted. After the blood sampling at the time of recurrence, blood sampling will be discontinued.

b) Upfront surgery

Blood samples will be collected preoperative, postoperative/before adjuvant chemotherapy. After surgery, blood samples will be collected every 3 months until 12 months. After 12 months, blood samples will be collected every 6 months until 24 months (3, 6, 9, 12, 18, 24 months). In addition, the blood sample will be collected at the time of recurrence. If the test is performed within 1 month (including the same day of the previous month), it can be omitted. After the blood sampling at the time of recurrence, blood sampling will be discontinued.

	Timing of imaging studies: a) Neoadjuvant chemotherapy Imaging studies will be performed before neoadjuvant chemotherapy, after neoadjuvant chemotherapy/prior to surgery. After surgery, imaging studies will be performed every 3 months until 12 months. After 12 months, imaging studies will be performed every 6 months until 24 months (3, 6, 9, 12, 18, 24 months). If disease progresses to unresectable stage after neoadjuvant chemotherapy, the imaging studies at the time of disease progression becomes the last test, and subsequent imaging studies will be discontinued. In addition, imaging studies will be performed at the time of recurrence. After the imaging study at the time of recurrence, the imaging studies will be discontinued. b) Upfront surgery Imaging studies will be performed before surgery. After surgery, imaging studies will be performed every 3 months until 12 months. After 12 months, imaging studies will be performed every 6 months until 24 months (3, 6, 9, 12, 18, 24 months). In addition, imaging studies will be performed at the time of recurrence. After the imaging studies at the time of recurrence, the imaging studies will be discontinued.
Eligibility criteria	**Inclusion criteria:** 1. ≥ 20 years of age at the time of enrollment. 2. Histological or cytological confirmed diagnosis of resectable PC Clinical stage is classified according to the AJCC/UICC 8th edition. 1. Clinical Stage IA (T1N0M0) 2. Clinical Stage IB (T2N0M0) 3. Clinical Stage IIA (T3N0M0) 4. Clinical Stage IIB (T1-3N1M0) 3. No prior treatment and has a plan of surgical resection for PC. 4. Willing to provide blood and tumor samples per protocol. 5. Written informed consent from the patient. **Exclusion criteria:** 1. Synchronous double/multiple cancer or metachronous double/multiple cancer with progression free period of 2 years or shorter. 2. Women who are pregnant or planning to become pregnant. 3. Judged by the investigator as being unsuitable for participation in the study.
Sample size and statistical analysis	50 patients

Blood collection and imaging

Cohort of patients with resectable pancreatic cancer

UICC TNM staging system (8th edition) Stage IA/IB/IIA/IIB*1

	Enrollment	After NAC	Before AC	Up to 24 months after surgery						Recurrence Enrollment～24 months after surgery
Month after surgery				3	6	9	12	18	24	
Acceptable range		±4w	+4w	±1m	±1m	±1m	±1m	±1m	±1m	±1m
Informed consent	○									
Patients characteristics	○									
ECOG PS	○									
Sample/Pathological findings	○									
EUS-FNA /FNB findings	○									
Surgical/Pathological findings			□							
CEA, CA19-9	◎	◎	○3	○4	○4	○4	○4	○4	○4	△
CT or MRI	◎	◎		○4	○4	○4	○4	○4	○4	△
Tissue sample	○2-1		○2-2							
Blood sampling for ctDNA *2	◎	◎	○3	○4	○4	○4	○4	○4	○4	△

Abbreviation: NAC, neoadjuvant chemotherapy; AC, adjuvant chemotherapy

*1 Use the clinical stage at the time of enrollment. See Section 8.3, Specimen Collection, for details on the blood collection schedule. In the case of non-resection due to progression after neoadjuvant chemotherapy, blood sampling and imaging study at the time of confirmation of progression will be the last, and further tests will be discontinued, but follow-up will be continued.
*2 Maximum blood sampling volume: 206ml (26ml at registration + 9 times x 20ml up to 24 months)
○: Within 4 weeks before enrollment (including the same day of the week).
○2-1: Tissue specimens (approximately 5-μm thick × 10 unstained slides sectioned from FFPE blocks) collected by EUS-FNA/FNB are sent to ArcherDX LLC, an Invitae Company via SRL Inc. or Clinical Logistics, Inc. or directly from each hospital.
○2-2: If a personalized panel cannot be created using tissue specimens sampled by EUS-FNA/FNB due to the quantity/quality of DNA, an personalized panel will be created using surgical specimens. Thus, surgical specimens (approximately 5-μm thick × 10 unstained slides sectioned from FFPE blocks) are sent to ArcherDX LLC, an Invitae Company via SRL Inc. or Clinical Logistics, Inc. or directly from each hospital.
□: Surgical and pathological findings are entered into the EDC as soon as the results are available.

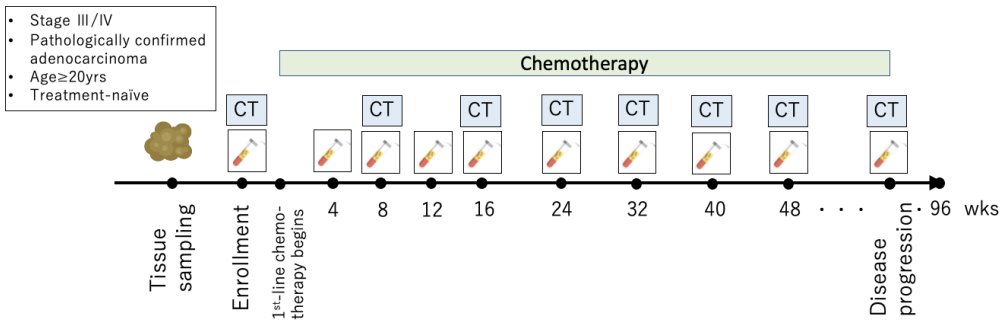
	◎: If patients do not receive neoadjuvant chemotherapy, the test is performed once at the time of enrollment. The test after neoadjuvant chemotherapy is allowed within 4 weeks (including the same day of the week) before surgery. ○[3]: Allow 4 weeks (Including the same day of the week) after surgery. ○[4]: Allow ±1 month for specified date (including the same day of the previous month). △: Allow ±1 month for specified date (including the same day of the previous month). If the test is performed within -1 month (including the same day of the previous month), it can be omitted. After that, no test is performed, but the follow-up will be continued.
Clinicopathological information	**Clinical features** 1. Age 2. Sex 3. Height/Weight (BMI) 4. Diabetes 5. History (alcohol, smoking) 6. Symptoms (abdominal pain, jaundice, constipation, diarrhea, diabetic exacerbation) 7. Other pancreatic comorbidities (e.g. autoimmune pancreatitis, chronic pancreatitis, IgG4-related disease) 8. Family history (PC/Lynch syndrome/ hereditary breast and ovarian cancer syndrome) 9. Any major physical trauma (e.g. disruption of tissue, surgery, organ transplant, blood transfusion) within the 30 days of blood collection. 10. Previous history of malignancy 11. Tumor marker (CA19-9, CEA) 12. Tumor location 13. Biliary drainage 14. Clinical stage (cStage) 15. Neo-adjuvant therapy (e.g. regimen, method of administration, dose of each agents, treatment period, presence or absence of discontinuation) 16. Adjuvant therapy(e.g. regimen, method of administration, dose of each agents, treatment period, presence or absence of discontinuation) 17. Surgical procedure **Pathological findings** 18. Macroscopic type 19. Tumor size (Greatest dimension) 20. Primary tumor (T) 21. Residual tumor (R0/1/2) 22. Lymph node, number of involved (N) 23. Pathological stage (pStage) 24. Histologic type 25. Lymphatic invasion 26. Vascular invasion 27. Perineural invasion

	28. Pathological response (e.g. Evans grade, CAP grade) **Follow-up information** 29. Tumor marker (CA19-9, CEA) 30. Recurrence date 31. Recurrence site 32. Treatment after recurrence (e.g. Chemotherapy, Chemo-radiotherapy, Surgery, Best supportive care, etc) 33. Dead or alive 34. Cause of death 35. Date of last contact
Planned study period	Planned enrollment period: 12 months, starting Dec, 2021 Planned follow up period: 24 months Planned study period: until October 31, Dec, 2025
Study representative	Takayuki Yoshino, Department of Gastrointestinal Oncology, National Cancer Center Hospital East
Principal investigator	Masafumi Ikeda, Department of Hepatobiliary & Pancreatic Oncology, National Cancer Center Hospital East Hideaki Bando, Translational Research Support Section, National Cancer Center Hospital East
Study Secretariat	Taro Shibuki, Department of Hepatobiliary & Pancreatic Oncology, National Cancer Center Hospital East Data Center, Translational Research Support Section, National Cancer Center Hospital East
Planned study sites	10 sites participating in the SCRUM-Japan GI-SCREEN
Implementation structure of the study	This study is a collaborative study with Archer. Investigators will ship blood samples from enrolled patients. Archer will analyze blood samples using the Archer PCM™ assay, and report results to investigators for research purposes only. Archer will provide relevant tissue results to NCC. After the creation of the individual panels, Archer will report the results to each participating facility and the study secretariat approximately 2 weeks after the ctDNA analysis. The results of the whole exome sequencing will be reported to the research secretariat.
References	1. Cancer Today- IARC, 150 Cours Albert Thomas, https://gco.iarc.fr/today/online-analysis-multi-bars?v=2018 2. Siegel RL, Miller KD and Jemal A: Cancer Statistics, 2017. CA Cancer J Clin 67: 7-30, 2017. PMID: 28055103. DOI: 10.3322/caac.21387 3. Hidalgo M: Pancreatic cancer. N Engl J Med 362: 1605-1617,2010. PMID: 20427809. DOI: 10.1056/NEJMra0901557 4. Uesaka K, Fukutomi A, Boku N et al. Randomaized Phaze III trial of adjuvant chemotherapy with gemcitabine versus S-1 for patients with resected pancreatic cancer. J Clin Oncol. 2013. 5. Unno M, Motoi F, Matsuyama Y, Satoi S, Matsumoto I, Aosasa S, et al. Randomized phase II/III trial of neoadjuvant chemotherapy with

gemcitabine and S-1 versus upfront surgery for resectable pancreatic cancer (Prep-02/JSAP-05). J Clin Oncol. 2019
6. Groot VP, Rezaee N, Wu W et al. Patterns, timing, and predictors of recurrence following pancreatectomy for pancreatic ductal adenocarcinoma. Ann Surg. 2018.
7. Malleo G. Dynamic behavior of CA19-9 and pancreatic cancer recurrence: enough data to drive salvage therapy? Ann Surg Oncol. 2018
8. Lee B, Lipton L, Cohen J et al. Circulating tumor DNA as a potential marker of adjuvant chemotherapy benefitfollowingsurgery for localized pancreatic cancer. Ann Oncol. 2019
9. Abbosh C, Frankell A, Garnett A et al. Phylogenetic tracking and minimal residual disease detection using ctDNA in early-stage NSCLC: A lung TRACERx study. Presented at: American Association for Cancer Research (AACR) Virtual Annual Meeting I; April 27-28, 2020. Abstract CT023.
10. Brugge WR, De Witt J, Klapman JB, et al. Techniques for cytologic sampling of pancreatic and bile duct lesions: The Papanicolaou Society of Cytopathology Guidelines. Cytojournal 2014
11. Micames C, Jowell PS, White R, et al. Lower frequency of peritoneal carcinomatosis in patients with pancreatic cancer diagnosed by EUS-guided FNA vs. percutaneous FNA. Gastrointest Endosc 2003
12. Okasha HH, Naga MI, Esmat S, et al. Endoscopic ultrasound-guided fine needle aspiration versus percutaneous ultrasound-guided fine needle aspiration in diagnosis of focal pancreatic masses. Endosc Ultrasound 2013

Study 2: Evaluation of concordance on detection rate of *KRAS* mutation between ctDNA and tumor tissue by the Archer PCM™ in patients with advanced pancreatic adenocarcinoma.

Study type	Prospective observational study
Rationale	● Pancreatic cancer (PC) is one of the most lethal malignancies, is the third leading cause of cancer deaths in United States, and fourth in Japan[1]. The consequence of aggressive growth, early dissemination and lack of early symptoms is that 80% of patients are diagnosed at an unresectable stage[1,2]. Despite recent improvements with chemotherapy, such as FOLFIRINOX or gemcitabine plus nab-paclitaxel, patients' prognosis remains unsatisfactory. ● The only (blood based) biomarker recommended for routine clinical use by the National Comprehensive Cancer Network (NCCN)-guideline is carbohydrate antigen 19-9 (CA19-9)[3]. The serum CA19-9 levels can provide important information with regards to prognosis, overall survival, and response to chemotherapy. However, non-specific expression in several benign and malignant diseases, false negative results in Lewis negative genotype, and an increased false positive result in the presence of obstructive jaundice severely limit the universal applicability of the serum CA19-9 levels in pancreatic cancer management[4,5]. ● *KRAS*, *CDKN2A*, *TP53*, and *SMAD4* genes are well-known driver alteration in pancreatic carcinogenesis[6-9]. Especially, *KRAS* mutations have been observed in 90% of PC and recent study has suggested that *KRAS* mutation can be used as useful biomarkers for prognosis[9,10]. However, the sampling of PC tumor tissue for molecular analysis can often be difficult. Therefore, the detection of KRAS mutation through noninvasive and convenient method is highly required. ● Circulating tumor DNA (ctDNA), through noninvasive blood sampling, has the potential to be used as a prognostic biomarker in PC. However, previous studies have reported *KRAS* detection rates by ctDNA ranging from 41.3% to 71.4% in advanced PC, which is not satisfactory and hampering the advancement of *KRAS* by ctDNA as a reliable clinical tool[10-12]. Hence, the improvement of concordance on *KRAS* mutation between plasma and tissue is the important step in ctDNA as a tool for evaluation of prognosis and monitoring treatment response. ● Archer LiquidPlex™ is a custom-designed ctDNA assay which detect variants at 0.3% allele frequency with input as low as 10ng. By applying this technology in advanced PC, we follow up the ctDNA since when we start the treatment. We also examine the dynamic changes in ctDNA *KRAS* mutation load as an assessment of therapeutic response. ● Samples will be banked to evaluate with the Archer PCM assay retrospectively.
Objectives	To evaluate the rate of concordance of *KRAS* mutations between tumor tissue specimens and blood samples using Archer PCM™ assay.

	To evaluate dynamic change in *KRAS* mutation of ctDNA load as an assessment of therapeutic response using Archer LiquidPlex™. **Primary endpoint** - Rate of concordance of KRAS mutations between tumor tissue specimens and blood samples. **Secondary endpoints** - Pretreatment ctDNA detection rate for each disease stage (stage III and stage IV). - Association of pretreatment ctDNA detection rate and the treatment effect. - Association of pretreatment serum tumor marker levels, ctDNA levels and treatment efficacy.
Study design	Prospective observational study to evaluate the concordance rate of *KRAS* mutation between ctDNA and tumor tissue by Archer PCM assay in patients with advanced PC. In addition, we follow up the ctDNA using Archer LiquidPlex™. We also evaluate the Archer PCM assay with banked samples retrospectively.
Study design schematic	 **Timing of blood sampling:** Blood samples will be collected before treatment and at 4, 8, 12, 16, 24, 32, 40, and 48 weeks after the start of treatment (every 4 weeks until 16 weeks and every 8 weeks thereafter). After 48 weeks, patients will be followed until 96 weeks and blood samples will be collected when disease progression is confirmed. If disease progression is confirmed earlier than 48 weeks, blood samples will be collected at the time of disease progression (can be omitted if the blood samples are collected within -2 weeks (including the same day of the week) up to 16 weeks, and within -4 weeks (including the same day of the week) after 16 weeks). After the blood sampling at the time of disease progression, blood sampling will be discontinued. In the case of

	discontinuation due to adverse events, blood sampling is continued according to the schedule until the time of confirmation of tumor progression, regardless of whether or not 2nd-line chemotherapy starts. **Timing of imaging studies:** Imaging studies will be performed before treatment and at 8, 16, 24, 32, 40, and 48 weeks after the start of treatment (every 8 weeks). After 48 weeks, patients will be followed until 96 weeks and the imaging study will be registered when disease progression is confirmed. If disease progression is confirmed earlier than 48 weeks, imaging studies will be performed at the time of disease progression (can be omitted if the imaging study is performed within -2 weeks (including the same day of the week) up to 16 weeks, and within -4 weeks (including the same day of the week) after 16 weeks). After the imaging study at the time of disease progression, imaging studies will be discontinued. In the case of discontinuation due to adverse events, imaging studies will be continued according to the schedule until the time of confirmation of disease progression, regardless of whether or not 2nd-line chemotherapy starts.
Eligibility criteria	Patients who meet both the inclusion criteria and do not meet any of the exclusion criteria will be enrolled in this study. **Inclusion criteria:** 1. ≥ 20 years of age at the time of enrollment. 2. Histological or cytological confirmed diagnosis of locally advanced or metastatic adenocarcinoma of the pancreas Clinical stage is classified according to the AJCC/UICC 8th edition. 3. Clinical stage Ⅲ (T4, any N, M0) 4. Clinical Stage Ⅳ (any T, any N, M1) 5. No prior treatment for PC 6. Willing to provide blood and tumor tissue samples per protocol 7. Written informed consent from the patient. 8. Have measurable disease by RECIST v1.1 **Exclusion criteria:** 1. Synchronous double/multiple cancer or metachronous double/multiple cancer with progression free period of 2 years or shorter. 2. Women who are pregnant or planning to become pregnant. 3. Judged by the investigator as being unsuitable for participation in the study.
Sample size and statistical analysis	100 patients
Blood collection and imaging	**Cohort of patients with unresectable pancreatic cancer** UICC TNM staging system (8th edition) Stage Ⅲ/Ⅳ*1

	Enrollment	Up to 48 weeks after starting 1st-line chemotherapy								Disease progression
		～16weeks				24～48 weeks				Enrollment ～96 weeks
Week after introduction of treatment		4	8	12	16	24	32	40	48	
Acceptable range (±wks)		2	2	2	2	4	4	4	4	4
Informed consent	○									
Patients characteristics	○									
ECOG PS	○									
Sample/Pathological findings	○									
Information of tissue sampling	○									
CEA, CA19-9	○	○[3]	○[3]	○[3]	○[3]	○[4]	○[4]	○[4]	○[4]	△
CT or MRI	○		○[3]		○[3]	○[4]	○[4]	○[4]	○[4]	△
Tissue sample	○[2]									
Blood sampling for ctDNA [*2]	○	○[3]	○[3]	○[3]	○[3]	○[4]	○[4]	○[4]	○[4]	△

[*1] Use the clinical stage at the time of enrollment. See Section 8.3, Specimen Collection, for details on the blood collection schedule.
[*2] Maximum blood sampling volume: 406ml (46ml at registration + 9 times x 40ml)

○ : Within 4 weeks before enrollment (including the same day of the week).
○[2] : Tissue sample (approximately 5-μm thick × 10 unstained slides sectioned from FFPE blocks) are sent to ArcherDX LLC, an Invitae Company via SRL Inc. or Clinical Logistics, Inc. or directly from each hospital.
○[3] : Allow ±2 weeks for specified date (including the same day of the week).
○[4] : Allow ±4 weeks for specified date (including the same day of the week).

△ : Allow ±4 weeks for specified date (including the same day of the week). If the test is performed within -4 weeks (including the same day of the week), it can be omitted. After that, no test is performed, but the tracking will continue.

Clinicopathological information

Clinical

4. Age
5. Sex
6. Height/Weight (BMI)
7. Diabetes
8. History (alcohol, smoking)
9. Symptoms (abdominal pain, jaundice, constipation, diarrhea, diabetic exacerbation)

	10. Other pancreatic comorbidities (e.g. autoimmune pancreatitis, chronic pancreatitis, IgG4-related disease) 11. Family history (PC/Lynch syndrome/ hereditary breast and ovarian cancer syndrome) 12. Any major physical trauma (e.g. disruption of tissue, surgery, organ transplant, blood transfusion) within the 30 days of blood collection. 13. Previous history of malignancy 14. Tumor marker (CA19-9, CEA) 15. Tumor location 16. Metastatic organ 17. Biliary drainage 18. Clinical stage (UICC 8th edition) 19. 1st line chemotherapy (e.g. regimen, dose, treatment cycle, presence or absence of discontinuation) **Follow-up** 20. Tumor marker (CA19-9, CEA) 21. Objective response (RECIST ver1.1) 22. Date of progressive disease 23. Subsequent treatment (e.g. Chemotherapy, Chemo-radiotherapy, Surgery, Best supportive care) 24. Dead or alive 25. Cause of death 26. Date of last contact
Planned study period	Planned enrollment period: 12 months, starting Dec 2021 Planned follow up period: 96 weeks Planned study period: until Dec 2025
Study representative	Takayuki Yoshino, Department of Gastrointestinal Oncology, National Cancer Center Hospital East
Representative principal investigator	Masafumi Ikeda, Department of Hepatobiliary & Pancreatic Oncology, National Cancer Center Hospital East Hideaki Bando, Translational Research Support Section, National Cancer Center Hospital East
Study Secretariat	Taro Shibuki, Department of Hepatobiliary & Pancreatic Oncology, National Cancer Center Hospital East Data Center, Translational Research Support Section, National Cancer Center Hospital East
Planned study sites	10 sites participating in the SCRUM-Japan GI-SCREEN
Implementation structure of the study	This study is a collaborative study with Archer. Investigators will ship blood samples from enrolled patients. Archer will analyze blood samples using the Archer PCM™ and Archer LiquidPlex™ assay, and report results to investigators for research purposes only. Archer will provide relevant tissue results to NCC. Archer will report the results to each participating facility and the study secretariat approximately 2 weeks

	after the tumor tissue and ctDNA analysis. The results of the whole exome analysis will be reported to the study secretariat.
References	13. Cancer Today- IARC, 150 Cours Albert Thomas, https://gco.iarc.fr/today/online-analysis-multi-bars?v=2018 14. Hidalgo M: Pancreatic cancer. N Engl J Med 2010 15. Tempero MA. NCCN Guidelines Updates: Pancreatic Cancer. J Natl Compr Canc Ntew. 2019 16. Tempero MA, Uchida E, Takasaki H et al. Relationship of carbohydrate antigen 19-9 and Lewis antigens in pancreatic cancer. Cancer Res. 1987 17. Galli C, Basso D, Plebani M. CA 19-9: handle with care. Clin Chem Lab Med. 2013 18. Hong SM, Park JY, Hruban RH et al. Molecular signatures of pancreatic cancer. Arch Pathol Lab Med 2011 19. Waddell N, Pajic M, Patch AM et al. Whole genomes redefine the mutational landscape of pancreatic cancer. Nature 2015 20. di Magliano MP, Logsdon CD. Roles for KRAS in pancreatic tumor development and progression. Gastroenterology 2013 21. Chen H, Tu H, Meng ZQ et al. K-ras mutational status predicts poor prognosis in unresectable pancreatic cancer Eur J Surg Oncol. 2010 22. Pietrasz D, Pécuchet N, Garlan F et al. Plasma Circulating Tumor DNA in Pancreatic Cancer Patients Is a Prognostic Marker. Clin Cancer Res. 2017 23. Kjersti T, Morten L, Tove B. et al. Clinical relevance of circulating KRAS mutated DNA in plasma from patients with advanced pancreatic cancer. Mol Oncol. 2016 24. Uesato Y, Sasahira N, Ozaka M et al. Evaluation of circulating tumor DNA as a biomarker in pancreatic cancer with liver metastasis. PLoS One. 2020 25. Abbosh C, Frankell A, Garnett A, et al. Phylogenetic tracking and minimal residual disease detection using ctDNA in early-stage NSCLC: A lung TRACERx study. Presented at: American Association for Cancer Research (AACR) Virtual Annual Meeting I; April 27-28, 2020. Abstract CT023.

Annexure A

Budget of Work:

Expenses Types	Details of Expense	Cost	Tax (10%)	SUM
FTE	Project management Data management	$367,500	$36,750	$404,250
EDC system	EDC Set up, Validation and License fee	$175,000	$17,500	$192,500
Site management fee	Cost for each site	$150,000	$15,000	$165,000
SUM		$692,500	$69,250	$761,750
Indirect Cost	10% of Total Expenses	$76,944	$7,694	$84,639
Total Expenses		$769,444	$76,944	$846,389

Annexure B

FTE Effort Breakdown (%)							
Study	Preparation	FY2021	FY2022	FY2023	FY2024	Total FTE Study Cost	
Project manager	0.500	0.500	0.250	0.250	0.250	1.750	
(months)	5.000	12.000	12.000	12.000	12.000	53.000	1FTE=9000
Total	2.500	6.000	3.000	3.000	3.000	17.500	$157,500
Total Costs for PM	$54,000	$27,000	$27,000	$27,000	$157,500	$157,500	
Data manager	0.500	0.250	0.250	0.250	0.500	1.750	
(months)	5.000	12.000	12.000	12.000	12.000	53.000	1FTE=12000
Total	2.500	3.000	3.000	3.000	6.000	17.500	$210,000
Total Costs for DM	$36,000	$36,000	$36,000	$72,000	$210,000	$210,000	
Total Costs for FTE	$90,000	$63,000	$63,000	$99,000	$367,500	$367,500	
Indirect Costs	$10,000	$7,000	$7,000	$11,000	$40,833	$40,833	
Total FTE Expenses	$100,000	$70,000	$70,000	$110,000	$408,333	$408,333	
(incl. 10% Tax)	$110,000	$77,000	$77,000	$121,000	$449,167	**$449,167**	

EDC Breakdown ($)

Study	Preparation	FY2021	FY2022	FY2023	FY2024	Total EDC Study Cost	
Build and set up	$50,000	$0	$0	$0	$0	$50,000	
validation/ UAT	$25,000	$0	$0	$0	$0	$25,000	
Licence fee		$25,000	$25,000	$25,000	$25,000	$100,000	$175,000
Total Costs for EDC	$75,000	$25,000	$25,000	$25,000	$25,000	$175,000	
Indirect Costs	$8,333	$2,778	$2,778	$2,778	$2,778	$19,444	
Total EDC Expenses	$83,333	$27,778	$27,778	$27,778	$27,778	$194,444	
(incl. 10% Tax)	$91,667	$30,556	$30,556	$30,556	$30,556	**$213,889**	

Per Sample/Per Patient Budget Request						
Study	# of Patients	Cost / Patient	SUM	IDC	Per Sample	Per Sample (incl. 10% Tax)
Cohort A	100	$1,000	$100,000	$11,111	$111,111	$122,222
Cohort B	50	$1,000	$50,000	$5,556	$55,556	$61,111
Total Sample Costs			$150,000			**$183,333**
Indirect Costs (IDC)			$16,667			
Total Sample Expenses			$166,667			
Total Sample Expenses (incl. 10% Tax)			**$183,333**			

Annexure C

Payment Schedule to NCC East

	Trigger for Invoice	Payment Amount	Accumulative Amount
Milestone 1	Upon execution of the Agreement (Preparation and FY2021)	$296,389	$296,389
Milestone 2	FY2022	$107,556	$403,944
Milestone 3	FY2023	$107,556	$511,500
Milestone 4	FY2024	$151,556	$663,056

	Trigger for Invoice	Payment Amount per patient	Total Amount
Cohort A	Receiving an analytical report for a patient	$1,222	$122,222
Cohort B	Receiving an analytical report for a patient	$1,222	$61,111
			$183,333

Amount is Tax included.

Annexure D

Assay costs to Invitae

- Resectable cohort of 50 patients, monitored for up to 96 weeks (24 months), with a maximum of 10 timepoints per patient
- Non-resectable cohort of 100 patients, monitored for 12 months, with a maximum of 10 timepoints per patient including KRAS investigation between tissue and blood
- PCM for 50 resectable T/N WES + 1 PCM timepoint
- PCM analysis of 9 timepoints x 50 patients
- PCM assay for 50 patients in the resectable cohort
- PCM for 100 nonresectable T/N WES + 1 PCM timepoint
- PCM analysis of 9 timepoints x 100 patients
- PCM assay for 100 patients in the nonresectable cohort
- LiquidPlex for 100 nonresectable patients x 10 timepoints
- PCM + LiquidPlex for both cohorts for 2,500 samples
- Logistics support by outside CRO such as CLI
- Total study cost of assays + CRO services + NCC E trial support

First Amendment to the Statement of Work

This First Amendment to the Statement of Work is dated as of September 7, 2022 (the "Amended SOW") by and between National Cancer Center, a National Research and Development Agency, (hereafter "**NCC**") and ArcherDX, LLC, a subsidiary of Invitae Corporation, together with its Affiliates (collectively hereafter "**Archer**"). All capitalized terms not defined in this Amended SOW shall have the meaning ascribed to them in the Original SOW or the Agreement.

WHEREAS NCC and Archer entered into the original Statement of Work effective attached as Exhibit B to the Master Research Agreement effective as of January 12, 2022 (the "Original SOW") and the "**Agreement**", respectively); and

WHEREAS NCC and Archer desire to amend the Original SOW remove references to an Archer assay known as "LiquidPlex,"and update certain other information contained in the Original SOW information for Archer,

NOW, THEREFORE, in consideration of the mutual covenants and promises set forth herein, NCC and Archer agree as follows:

1. Exhibit B to the Original SOW is hereby deleted in its entirety and replaced with the Exhibit B attached to this Amended SOW.

2. **No Other Changes:** Except as expressly modified above, all terms and conditions of the Agreement remain in full force and effect and are hereby ratified and confirmed. In the event of a conflict between the terms of this Amended SOW and the Original SOW, this Amended SOW shall prevail.

IN WITNESS WHEREOF, this Amended SOW has been executed by the parties hereto through their duly authorized representatives as of the last date of execution.

NATIONAL CANCER CENTER

By: _____

Name: Hitoshi Nakagama

Title: President

Date: _____

ARCHERDX, LLC a subsidiary of INVITAE CORPORATION

DocuSigned by:

By: Jerome Madison

CA1333D224FF42C...

Name: Jerome Madison

Title: General Manager, Oncology

Date: 2022-Sep-13 | 3:35 PM PDT

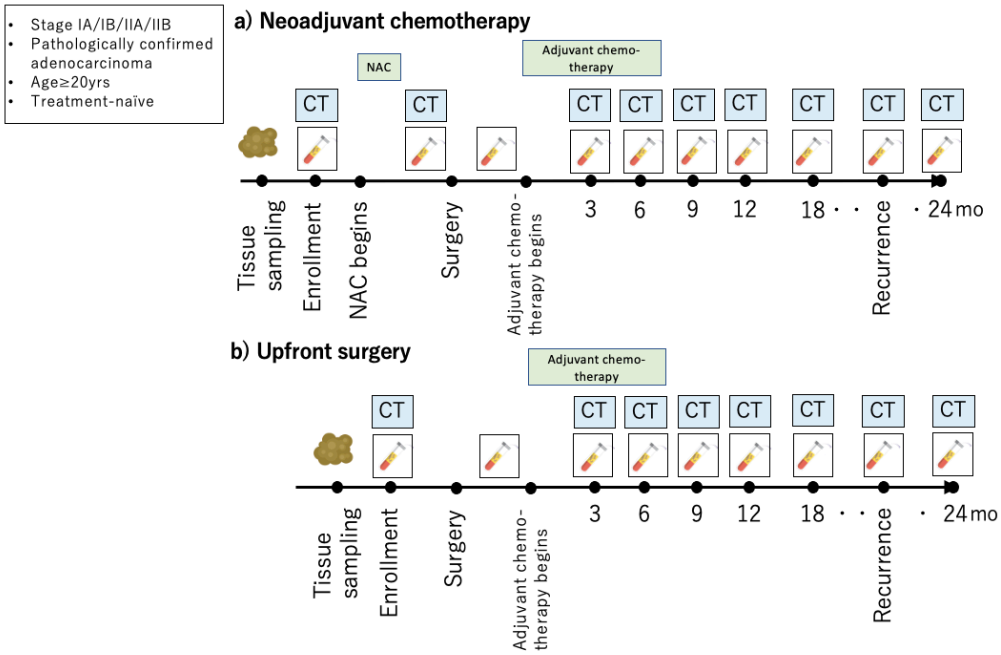
Exhibit B

Title: Multicenter study of circulating tumor DNA in patients with Pancreatic Cancer using a personalized panel (**ARTEMIS-PC**)

Study 1: Feasibility study of personalized panel of the Invitae PCM™ assay using tumor samples obtained by EUS-FNA/FNB in patients with resectable pancreatic adenocarcinoma.

Study type	Prospective observational study
Rationale	● Pancreatic cancer (PC) is one of the most lethal malignancies, is the third leading cause of cancer deaths in United States, and fourth in Japan[1]. Despite improvements in surgical techniques and chemotherapy, pancreatic cancer remains a fatal disease, with a global 5-year survival rate of less than 10%[2]. The majority of patients with pancreatic cancer present with locally advanced or metastatic disease, and less than 20% of patients are suitable for resection at the time of diagnosis[3]. ● Surgical resection is still considered the only potentially curative treatment for PC. Following surgical resection, adjuvant chemotherapy is typically administered given the demonstrated survival benefit. In Japan, adjuvant S-1 is typically administered for 6 months[4]. Recently, it has been reported by Japanese investigators (Prep-02/JSAP-05) that neoadjuvant chemotherapy with gemcitabine plus S-1 prolonged overall survival as compared to upfront surgery in patients with resectable PC[5]. Therefore, neoadjuvant chemotherapy is generally used in clinical practice. Unfortunately, even in surgically resected PC patients, about 80% recur after curative surgery[6]. Thus, early detection of PC patients and identification of factors that may predict tumor recurrence and prognosis are needed to improve clinical outcomes in pancreatic cancer. Although the most representative tumor marker, CA19-9 has been serving to diagnose PC and detect postoperative recurrence for decades, its sensitivity and specificity are not satisfactory in diagnosis and predicting tumor relapse[7]. Therefore, novel method that can detect at an early stage and timely predict postoperative tumor recurrence is urgently needed in PC. ● Circulating tumor DNA (ctDNA) has the potential to be used as a prognostic and predictive biomarker in patients with resectable PC[8]. However, detection of ctDNA can be challenging in patients with low-volume, localized tumors, where plasma contains very few ctDNA. Hence, patient-specific cancer assays using tumor genotype information obtained by tumor tissue offer the possibility to increase the sensitivity of ctDNA in early stage PC. Invitae PCM™ is a custom-designed ctDNA assay tracking at least 50 tumor-specific variants, and demonstrated a sensitivity of 89% for ctDNA at a mutant allele frequency of 0.008%, specificity was 100% in patients with non-small cell lung cancer[9]

	● Endoscopic ultrasound-guided fine needle aspiration (EUS-FNA) or fine needle biopsy (FNB) is preferred approach to obtain tumor sample in resectable PC. Although EUS-FNA/FNB is highly accurate and reliable for determining malignancy, it is unknown whether EUS-FNA/FNB can obtain sufficient tumor tissue for molecular analysis in resectable PC[10-12]. ● In this study, we evaluate the feasibility of the personalized panel of the Invitae PCM™ assay using tumor samples obtained by EUS-FNA/FNB in patients with resectable PC. We also examine the potential clinical utility of ctDNA as a predictive marker, including pre- and post-operative samples.
Objectives	To evaluate creation rate of personalized panel of Invitae PCM™ in patients with resectable PC. To evaluate association between pre-operative/post-operative ctDNA result and clinical outcomes. **Primary endpoint** - Success rate of WES assays and selections of personalized genes using tumor tissue specimens obtained by EUS-FNA/FNB. **Secondary endpoints** - Rate of ctDNA positivity for each cancer stage (stage IA-stage IIB) before neoadjuvant chemotherapy (NAC) and 4 weeks after surgery. - Association of preoperative ctDNA before NAC and overall survival. - Association of postoperative ctDNA before adjuvant chemotherapy (AC) and overall survival - Proportion of ctDNA positivity at the time of recurrence detected by diagnostic imaging. - Association of serum tumor marker levels and recurrence free survival (RFS), ctDNA positivity and RFS at the timepoints before NAC and before AC. - Differences in OS and PFS between the patients in whom the personalized panel can be created and those in whom it cannot be created - To investigate the lead time from ctDNA detection to recurrence detected by diagnostic imaging
Study design	Prospective observational study that evaluates the creation rate of personalized panel in patients who have resectable PC.
Study design schematic	



Timing of blood sampling:

a) Neoadjuvant chemotherapy

Blood samples will be collected before neoadjuvant chemotherapy, after neoadjuvant chemotherapy/prior to surgery, and postoperative/before adjuvant chemotherapy. After surgery, blood samples will be collected every 3 months until 12 months. After 12months, blood samples will be collected every 6 months until 24 months (3, 6, 9, 12, 18, 24 months). If disease progresses to unresectable stage after neoadjuvant chemotherapy, blood samples at the time of disease progression becomes the last test, and subsequent blood sampling will be discontinued. In addition, the blood sample will be collected at the time of recurrence. If the test is performed within 1 month (including the same day of the previous month), it can be omitted. After the blood sampling at the time of recurrence, blood sampling will be discontinued.

b) Upfront surgery

Blood samples will be collected preoperative, postoperative/before adjuvant chemotherapy. After surgery, blood samples will be collected every 3 months until 12 months. After 12 months, blood samples will be collected every 6 months until 24 months (3, 6, 9, 12, 18, 24 months). In addition, the blood sample will be collected at the time of recurrence. If the test is performed within 1 month (including the same day of the previous month), it can be omitted. After the blood sampling at the time of recurrence, blood sampling will be discontinued.

	Timing of imaging studies: a) Neoadjuvant chemotherapy Imaging studies will be performed before neoadjuvant chemotherapy, after neoadjuvant chemotherapy/prior to surgery. After surgery, imaging studies will be performed every 3 months until 12 months. After 12 months, imaging studies will be performed every 6 months until 24 months (3, 6, 9, 12, 18, 24 months). If disease progresses to unresectable stage after neoadjuvant chemotherapy, the imaging studies at the time of disease progression becomes the last test, and subsequent imaging studies will be discontinued. In addition, imaging studies will be performed at the time of recurrence. After the imaging study at the time of recurrence, the imaging studies will be discontinued. b) Upfront surgery Imaging studies will be performed before surgery. After surgery, imaging studies will be performed every 3 months until 12 months. After 12 months, imaging studies will be performed every 6 months until 24 months (3, 6, 9, 12, 18, 24 months). In addition, imaging studies will be performed at the time of recurrence. After the imaging studies at the time of recurrence, the imaging studies will be discontinued.
Eligibility criteria	**Inclusion criteria:** 1. ≥ 20 years of age at the time of enrollment. 2. Histological or cytological confirmed diagnosis of resectable PC Clinical stage is classified according to the AJCC/UICC 8th edition. 1. Clinical Stage IA (T1N0M0) 2. Clinical Stage IB (T2N0M0) 3. Clinical Stage IIA (T3N0M0) 4. Clinical Stage IIB (T1-3N1M0) 3. No prior treatment and has a plan of surgical resection for PC. 4. Willing to provide blood and tumor samples per protocol. 5. Written informed consent from the patient. **Exclusion criteria:** 1. Synchronous double/multiple cancer or metachronous double/multiple cancer with progression free period of 2 years or shorter. 2. Women who are pregnant or planning to become pregnant. 3. Judged by the investigator as being unsuitable for participation in the study.
Sample size and statistical analysis	50 patients
Blood collection and imaging	**Cohort of patients with resectable pancreatic cancer** UICC TNM staging system (8th edition) Stage IA/IB/IIA/IIB*[1]

	Enrollment	After NAC	Before AC	Up to 24 months after surgery						Recurrence Enrollment～24 months after surgery
Month after surgery				3	6	9	12	18	24	
Acceptable range		±4w	+4w	±1m	±1m	±1m	±1m	±1m	±1m	±1m
Informed consent	○									
Patients characteristics	○									
ECOG PS	○									
Sample/Pathological findings	○									
EUS-FNA /FNB findings	○									
Surgical/Pathological findings			□							
CEA, CA19-9	◎	◎	○[3]	○[4]	○[4]	○[4]	○[4]	○[4]	○[4]	△
CT or MRI	◎	◎		○[4]	○[4]	○[4]	○[4]	○[4]	○[4]	△
Tissue sample	○[2-1]		○[2-2]							
Blood sampling for ctDNA [*2]	◎	◎	○[3]	○[4]	○[4]	○[4]	○[4]	○[4]	○[4]	△

Abbreviation: NAC, neoadjuvant chemotherapy; AC, adjuvant chemotherapy

[*1] Use the clinical stage at the time of enrollment. See Section 8.3, Specimen Collection, for details on the blood collection schedule. In the case of non-resection due to progression after neoadjuvant chemotherapy, blood sampling and imaging study at the time of confirmation of progression will be the last, and further tests will be discontinued, but follow-up will be continued.

[*2] Maximum blood sampling volume: 206ml (26ml at registration + 9 times x 20ml up to 24 months)

○: Within 4 weeks before enrollment (including the same day of the week).

○[2-1]：Tissue specimens (approximately 5-μm thick × 10 unstained slides sectioned from FFPE blocks) collected by EUS-FNA/FNB are sent to Invitae Corporation's laboratory, at an address which shall be provided in writing, from each hospital.

○[2-2]：If a personalized panel cannot be created using tissue specimens sampled by EUS-FNA/FNB due to the quantity/quality of DNA, an personalized panel will be created using surgical specimens. Thus, surgical specimens (approximately 5-μm thick × 10 unstained slides sectioned from FFPE blocks) are sent to Invitae Corporation's laboratory at an address which shall be provided in writing from each hospital.

□：Surgical and pathological findings are entered into the EDC as soon as the results are available.

◎：If patients do not receive neoadjuvant chemotherapy, the test is performed once at the time of enrollment. The test after neoadjuvant chemotherapy is allowed within 4 weeks (including the same day of the week) before surgery.

○[3]：Allow 4 weeks (Including the same day of the week) after surgery.

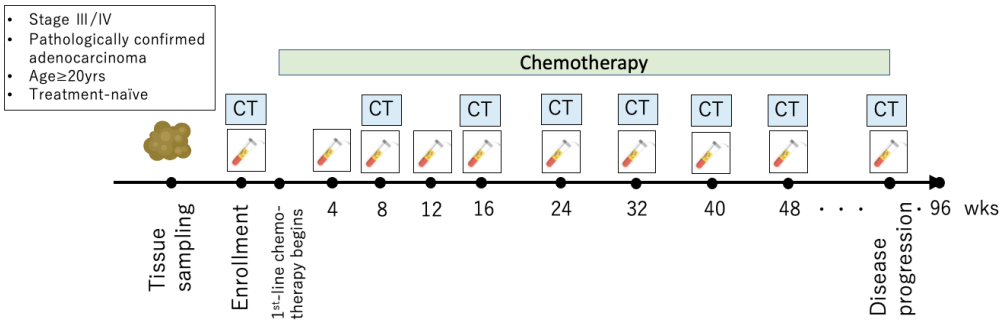
	○[4]：Allow ±1 month for specified date (including the same day of the previous month). △：Allow ±1 month for specified date (including the same day of the previous month). If the test is performed within -1 month (including the same day of the previous month), it can be omitted. After that, no test is performed, but the follow-up will be continued.
Clinicopathological information	**Clinical features** 1. Age 2. Sex 3. Height/Weight (BMI) 4. Diabetes 5. History (alcohol, smoking) 6. Symptoms (abdominal pain, jaundice, constipation, diarrhea, diabetic exacerbation) 7. Other pancreatic comorbidities (e.g. autoimmune pancreatitis, chronic pancreatitis, IgG4-related disease) 8. Family history (PC/Lynch syndrome/ hereditary breast and ovarian cancer syndrome) 9. Any major physical trauma (e.g. disruption of tissue, surgery, organ transplant, blood transfusion) within the 30 days of blood collection. 10. Previous history of malignancy 11. Tumor marker (CA19-9, CEA) 12. Tumor location 13. Biliary drainage 14. Clinical stage (cStage) 15. Neo-adjuvant therapy (e.g. regimen, method of administration, dose of each agents, treatment period, presence or absence of discontinuation) 16. Adjuvant therapy(e.g. regimen, method of administration, dose of each agents, treatment period, presence or absence of discontinuation) 17. Surgical procedure **Pathological findings** 18. Macroscopic type 19. Tumor size (Greatest dimension) 20. Primary tumor (T) 21. Residual tumor (R0/1/2) 22. Lymph node, number of involved (N) 23. Pathological stage (pStage) 24. Histologic type 25. Lymphatic invasion 26. Vascular invasion 27. Perineural invasion 28. Pathological response (e.g. Evans grade, CAP grade) **Follow-up information** 29. Tumor marker (CA19-9, CEA) 30. Recurrence date 31. Recurrence site 32. Treatment after recurrence (e.g. Chemotherapy, Chemo-radiotherapy, Surgery, Best supportive care, etc)

	33. Dead or alive 34. Cause of death 35. Date of last contact
Planned study period	Planned enrollment period: 12 months, starting Oct, 2022 Planned follow up period: 24 months Planned study period: until Oct, 2026
Study representative	Takayuki Yoshino, Department of Gastrointestinal Oncology, National Cancer Center Hospital East
Principal investigator	Masafumi Ikeda, Department of Hepatobiliary & Pancreatic Oncology, National Cancer Center Hospital East Hideaki Bando, Translational Research Support Section, National Cancer Center Hospital East
Study Secretariat	Taro Shibuki, Department of Hepatobiliary & Pancreatic Oncology, National Cancer Center Hospital East Data Center, Translational Research Support Section, National Cancer Center Hospital East
Planned study sites	10 sites participating in the SCRUM-Japan GI-SCREEN
Implementation structure of the study	This study is a collaborative study with Invitae Corporation. Investigators will ship blood samples from enrolled patients. Invitae Corporation will analyze blood samples using the Invitae PCM™ assay, and report results to investigators for research purposes only. Invitae Corporation will provide relevant tissue results to NCC. After the creation of the individual panels, Invitae Corporation will report the results to each participating facility and the study secretariat approximately 3 months after the ctDNA analysis. The results of the whole exome sequencing will be reported to the research secretariat annually.
References	1. Cancer Today- IARC, 150 Cours Albert Thomas, https://gco.iarc.fr/today/online-analysis-multi-bars?v=2018 2. Siegel RL, Miller KD and Jemal A: Cancer Statistics, 2017. CA Cancer J Clin 67: 7-30, 2017. PMID: 28055103. DOI: 10.3322/caac.21387 3. Hidalgo M: Pancreatic cancer. N Engl J Med 362: 1605-1617,2010. PMID: 20427809. DOI: 10.1056/NEJMra0901557 4. Uesaka K, Fukutomi A, Boku N et al. Randomaized Phaze III trial of adjuvant chemotherapy with gemcitabine versus S-1 for patients with resected pancreatic cancer. J Clin Oncol. 2013. 5. Unno M, Motoi F, Matsuyama Y, Satoi S, Matsumoto I, Aosasa S, et al. Randomized phase II/III trial of neoadjuvant chemotherapy with gemcitabine and S-1 versus upfront surgery for resectable pancreatic cancer (Prep-02/JSAP-05). J Clin Oncol. 2019 6. Groot VP, Rezaee N, Wu W et al. Patterns, timing, and predictors of recurrence following pancreatectomy for pancreatic ductal adenocarcinoma. Ann Surg. 2018. 7. Malleo G. Dynamic behavior of CA19-9 and pancreatic cancer recurrence: enough data to drive salvage therapy? Ann Surg Oncol. 2018

	8. Lee B, Lipton L, Cohen J et al. Circulating tumor DNA as a potential marker of adjuvant chemotherapy benefitfollowingsurgery for localized pancreatic cancer. Ann Oncol. 2019 9. Abbosh C, Frankell A, Garnett A et al. Phylogenetic tracking and minimal residual disease detection using ctDNA in early-stage NSCLC: A lung TRACERx study. Presented at: American Association for Cancer Research (AACR) Virtual Annual Meeting I; April 27-28, 2020. Abstract CT023. 10. Brugge WR, De Witt J, Klapman JB, et al. Techniques for cytologic sampling of pancreatic and bile duct lesions: The Papanicolaou Society of Cytopathology Guidelines. Cytojournal 2014 11. Micames C, Jowell PS, White R, et al. Lower frequency of peritoneal carcinomatosis in patients with pancreatic cancer diagnosed by EUS-guided FNA vs. percutaneous FNA. Gastrointest Endosc 2003 12. Okasha HH, Naga MI, Esmat S, et al. Endoscopic ultrasound-guided fine needle aspiration versus percutaneous ultrasound-guided fine needle aspiration in diagnosis of focal pancreatic masses. Endosc Ultrasound 2013

Study 2: Evaluation of concordance on detection rate of *KRAS* mutation between ctDNA and tumor tissue by the Invitae PCM™ in patients with advanced pancreatic adenocarcinoma.

Study type	Prospective observational study
Rationale	● Pancreatic cancer (PC) is one of the most lethal malignancies, is the third leading cause of cancer deaths in United States, and fourth in Japan[1]. The consequence of aggressive growth, early dissemination and lack of early symptoms is that 80% of patients are diagnosed at an unresectable stage[,2]. Despite recent improvements with chemotherapy, such as FOLFIRINOX or gemcitabine plus nab-paclitaxel, patients' prognosis remains unsatisfactory. ● The only (blood based) biomarker recommended for routine clinical use by the National Comprehensive Cancer Network (NCCN)-guideline is carbohydrate antigen 19-9 (CA19-9)[3]. The serum CA19-9 levels can provide important information with regards to prognosis, overall survival, and response to chemotherapy. However, non-specific expression in several benign and malignant diseases, false negative results in Lewis negative genotype, and an increased false positive result in the presence of obstructive jaundice severely limit the universal applicability of the serum CA19-9 levels in pancreatic cancer management[4,5]. ● *KRAS*, *CDKN2A*, *TP53*, and *SMAD4* genes are well-known driver alteration in pancreatic carcinogenesis[6-9]. Especially, *KRAS* mutations have been observed in 90% of PC and recent study has suggested that *KRAS* mutation can be used as useful biomarkers for prognosis[9,10]. However, the sampling of PC tumor tissue for molecular analysis can often be difficult. Therefore, the detection of KRAS mutation through noninvasive and convenient method is highly required. ● Circulating tumor DNA (ctDNA), through noninvasive blood sampling, has the potential to be used as a prognostic biomarker in PC. However, previous studies have reported *KRAS* detection rates by ctDNA ranging from 41.3% to 71.4% in advanced PC, which is not satisfactory and hampering the advancement of *KRAS* by ctDNA as a reliable clinical tool[10-12]. Hence, the improvement of concordance on *KRAS* mutation between plasma and tissue is the important step in ctDNA as a tool for evaluation of prognosis and monitoring treatment response. Thus, we examine the rate of concordance of KRAS mutations between tumor tissue specimens and blood samples in unresectable PC.
Objectives	To evaluate the rate of concordance of *KRAS* mutations between tumor tissue specimens and blood samples using Invitae PCM™ assay. **Primary endpoint** - Rate of concordance of *KRAS* mutations between tumor tissue specimens and blood samples. **Secondary endpoints** - Pretreatment ctDNA detection rate for each disease stage (stage III and stage IV).

	- Association of pretreatment ctDNA detection rate and the treatment effect. - Association of pretreatment serum tumor marker levels, ctDNA levels and treatment efficacy.
Study design	Prospective observational study to evaluate the concordance rate of *KRAS* mutation between ctDNA and tumor tissue by Invitae PCM assay in patients with advanced PC.
Study design schematic	 **Timing of blood sampling:** Blood samples will be collected before treatment and at 4, 8, 12, 16, 24, 32, 40, and 48 weeks after the start of treatment (every 4 weeks until 16 weeks and every 8 weeks thereafter). After 48 weeks, patients will be followed until 96 weeks and blood samples will be collected when disease progression is confirmed. If disease progression is confirmed earlier than 48 weeks, blood samples will be collected at the time of disease progression (can be omitted if the blood samples are collected within -2 weeks (including the same day of the week) up to 16 weeks, and within -4 weeks (including the same day of the week) after 16 weeks). After the blood sampling at the time of disease progression, blood sampling will be discontinued. In the case of discontinuation due to adverse events, blood sampling is continued according to the schedule until the time of confirmation of tumor progression, regardless of whether or not 2nd-line chemotherapy starts. **Timing of imaging studies:** Imaging studies will be performed before treatment and at 8, 16, 24, 32, 40, and 48 weeks after the start of treatment (every 8 weeks). After 48 weeks, patients will be followed until 96 weeks and the imaging study will be registered when disease progression is confirmed. If disease progression is confirmed earlier than 48 weeks, imaging studies will be performed at the time of disease progression (can be omitted if the imaging study is performed within -2 weeks (including the same day of the week) up to 16 weeks, and within -4 weeks (including the same day of the week) after 16 weeks). After the imaging study at the time of disease progression, imaging studies will be

	discontinued. In the case of discontinuation due to adverse events, imaging studies will be continued according to the schedule until the time of confirmation of disease progression, regardless of whether or not 2nd-line chemotherapy starts.
Eligibility criteria	Patients who meet both the inclusion criteria and do not meet any of the exclusion criteria will be enrolled in this study. **Inclusion criteria:** 1. ≥ 20 years of age at the time of enrollment. 2. Histological or cytological confirmed diagnosis of locally advanced or metastatic adenocarcinoma of the pancreas Clinical stage is classified according to the AJCC/UICC 8th edition. 3. Clinical stage Ⅲ (T4, any N, M0) 4. Clinical Stage Ⅳ (any T, any N, M1) 5. No prior treatment for PC 6. Willing to provide blood and tumor tissue samples per protocol 7. Written informed consent from the patient. 8. Have measurable disease by RECIST v1.1 **Exclusion criteria:** 1. Synchronous double/multiple cancer or metachronous double/multiple cancer with progression free period of 2 years or shorter. 2. Women who are pregnant or planning to become pregnant. 3. Judged by the investigator as being unsuitable for participation in the study.
Sample size and statistical analysis	100 patients
Blood collection and imaging	**Cohort of patients with unresectable pancreatic cancer** UICC TNM staging system (8th edition) Stage Ⅲ/Ⅳ*1

	Enrollment	Up to 48 weeks after starting 1st-line chemotherapy								Disease progression
		～16weeks				24～48 weeks				Enrollment ～96 weeks
Week after introduction of treatment		4	8	12	16	24	32	40	48	
Acceptable range (±wks)		2	2	2	2	4	4	4	4	4
Informed consent	○									
Patients characteristics	○									
ECOG PS	○									
Sample/Pathological findings	○									
Information of tissue sampling	○									
CEA, CA19-9	○	○[3]	○[3]	○[3]	○[3]	○[4]	○[4]	○[4]	○[4]	△
CT or MRI	○		○[3]		○[3]	○[4]	○[4]	○[4]	○[4]	△
Tissue sample	○[2]									
Blood sampling for ctDNA [*2]	○	○[3]	○[3]	○[3]	○[3]	○[4]	○[4]	○[4]	○[4]	△

[*1] Use the clinical stage at the time of enrollment. See Section 8.3, Specimen Collection, for details on the blood collection schedule.
[*2] Maximum blood sampling volume: 206ml (26ml at registration + 9 times x 20ml)

○：Within 4 weeks before enrollment (including the same day of the week).
○[2]：Tissue sample (approximately 5-μm thick × 10 unstained slides sectioned from FFPE blocks) are sent to Invitae Corporation directly from each hospital.
○[3]：Allow ±2 weeks for specified date (including the same day of the week).
○[4]：Allow ±4 weeks for specified date (including the same day of the week).

△：Allow ±4 weeks for specified date (including the same day of the week). If the test is performed within -4 weeks (including the same day of the week), it can be omitted. After that, no test is performed, but the tracking will continue.

Clinicopathological information	**Clinical** 4. Age 5. Sex 6. Height/Weight (BMI) 7. Diabetes 8. History (alcohol, smoking) 9. Symptoms (abdominal pain, jaundice, constipation, diarrhea, diabetic exacerbation)

	10. Other pancreatic comorbidities (e.g. autoimmune pancreatitis, chronic pancreatitis, IgG4-related disease) 11. Family history (PC/Lynch syndrome/ hereditary breast and ovarian cancer syndrome) 12. Any major physical trauma (e.g. disruption of tissue, surgery, organ transplant, blood transfusion) within the 30 days of blood collection. 13. Previous history of malignancy 14. Tumor marker (CA19-9, CEA) 15. Tumor location 16. Metastatic organ 17. Biliary drainage 18. Clinical stage (UICC 8th edition) 19. 1st line chemotherapy (e.g. regimen, dose, treatment cycle, presence or absence of discontinuation) **Follow-up** 20. Tumor marker (CA19-9, CEA) 21. Objective response (RECIST ver1.1) 22. Date of progressive disease 23. Subsequent treatment (e.g. Chemotherapy, Chemo-radiotherapy, Surgery, Best supportive care) 24. Dead or alive 25. Cause of death 26. Date of last contact
Planned study period	Planned enrollment period: 12 months, starting Oct 2022 Planned follow up period: 96 weeks Planned study period: until Oct 2026
Study representative	Takayuki Yoshino, Department of Gastrointestinal Oncology, National Cancer Center Hospital East
Representative principal investigator	Masafumi Ikeda, Department of Hepatobiliary & Pancreatic Oncology, National Cancer Center Hospital East Hideaki Bando, Translational Research Support Section, National Cancer Center Hospital East
Study Secretariat	Taro Shibuki, Department of Hepatobiliary & Pancreatic Oncology, National Cancer Center Hospital East Data Center, Translational Research Support Section, National Cancer Center Hospital East
Planned study sites	10 sites participating in the SCRUM-Japan GI-SCREEN
Implementation structure of the study	This study is a collaborative study with Invitae Corporation. Investigators will ship blood samples from enrolled patients. Invitae Corporation will analyze blood samples using the Invitae PCM™, and report results to investigators for research purposes only. Invitae Corporation will provide relevant tissue results to NCC. Invitae Corporation will report the results to each participating facility and the study secretariat approximately 3 months after the tumor tissue and ctDNA analysis. The results of the whole exome analysis will be reported to the study secretariat annually.

References	13. Cancer Today- IARC, 150 Cours Albert Thomas, https://gco.iarc.fr/today/online-analysis-multi-bars?v=2018 14. Hidalgo M: Pancreatic cancer. N Engl J Med 2010 15. Tempero MA. NCCN Guidelines Updates: Pancreatic Cancer. J Natl Compr Canc Ntew. 2019 16. Tempero MA, Uchida E, Takasaki H et al. Relationship of carbohydrate antigen 19-9 and Lewis antigens in pancreatic cancer. Cancer Res. 1987 17. Galli C, Basso D, Plebani M. CA 19-9: handle with care. Clin Chem Lab Med. 2013 18. Hong SM, Park JY, Hruban RH et al. Molecular signatures of pancreatic cancer. Arch Pathol Lab Med 2011 19. Waddell N, Pajic M, Patch AM et al. Whole genomes redefine the mutational landscape of pancreatic cancer. Nature 2015 20. di Magliano MP, Logsdon CD. Roles for KRAS in pancreatic tumor development and progression. Gastroenterology 2013 21. Chen H, Tu H, Meng ZQ et al. K-ras mutational status predicts poor prognosis in unresectable pancreatic cancer Eur J Surg Oncol. 2010 22. Pietrasz D, Pécuchet N, Garlan F et al. Plasma Circulating Tumor DNA in Pancreatic Cancer Patients Is a Prognostic Marker. Clin Cancer Res. 2017 23. Kjersti T, Morten L, Tove B. et al. Clinical relevance of circulating KRAS mutated DNA in plasma from patients with advanced pancreatic cancer. Mol Oncol. 2016 24. Uesato Y, Sasahira N, Ozaka M et al. Evaluation of circulating tumor DNA as a biomarker in pancreatic cancer with liver metastasis. PLoS One. 2020 25. Abbosh C, Frankell A, Garnett A, et al. Phylogenetic tracking and minimal residual disease detection using ctDNA in early-stage NSCLC: A lung TRACERx study. Presented at: American Association for Cancer Research (AACR) Virtual Annual Meeting I; April 27-28, 2020. Abstract CT023.

Annexure A

Budget of Work:

Expenses Types	Details of Expense	Cost	Tax (10%)	SUM
FTE	Project management Data management	$367,500	$36,750	$404,250
EDC system	EDC Set up, Validation and License fee	$175,000	$17,500	$192,500
Site management fee	Cost for each site	$150,000	$15,000	$165,000
SUM		$692,500	$69,250	$761,750
Indirect Cost	10% of Total Expenses	$76,944	$7,694	$84,639
Total Expenses		$769,444	$76,944	$846,389

Annexure B

FTE Effort Breakdown (%)							
Study	Preparation	FY2021	FY2022	FY2023	FY2024	Total FTE Study Cost	
Project manager	0.500	0.500	0.250	0.250	0.250	1.750	
(months)	5.000	12.000	12.000	12.000	12.000	53.000	1FTE=9000
Total	2.500	6.000	3.000	3.000	3.000	17.500	$157,500
Total Costs for PM	$54,000	$27,000	$27,000	$27,000	$157,500	$157,500	
Data manager	0.500	0.250	0.250	0.250	0.500	1.750	
(months)	5.000	12.000	12.000	12.000	12.000	53.000	1FTE=12000
Total	2.500	3.000	3.000	3.000	6.000	17.500	$210,000
Total Costs for DM	$36,000	$36,000	$36,000	$72,000	$210,000	$210,000	
Total Costs for FTE	$90,000	$63,000	$63,000	$99,000	$367,500	$367,500	
Indirect Costs	$10,000	$7,000	$7,000	$11,000	$40,833	$40,833	
Total FTE Expenses	$100,000	$70,000	$70,000	$110,000	$408,333	$408,333	
(incl. 10% Tax)	$110,000	$77,000	$77,000	$121,000	$449,167	**$449,167**	

EDC Breakdown ($)							
Study	Preparation	FY2021	FY2022	FY2023	FY2024	Total EDC Study Cost	
Build and set up	$50,000	$0	$0	$0	$0	$50,000	
validation/ UAT	$25,000	$0	$0	$0	$0	$25,000	
Licence fee		$25,000	$25,000	$25,000	$25,000	$100,000	$175,000
Total Costs for EDC	$75,000	$25,000	$25,000	$25,000	$25,000	$175,000	
Indirect Costs	$8,333	$2,778	$2,778	$2,778	$2,778	$19,444	
Total EDC Expenses	$83,333	$27,778	$27,778	$27,778	$27,778	$194,444	
(incl. 10% Tax)	$91,667	$30,556	$30,556	$30,556	$30,556	**$213,889**	

Per Sample/Per Patient Budget Request						
Study	# of Patients	Cost / Patient	SUM	IDC	Per Sample	Per Sample (incl. 10% Tax)
Cohort A	100	$1,000	$100,000	$11,111	$111,111	$122,222
Cohort B	50	$1,000	$50,000	$5,556	$55,556	$61,111
Total Sample Costs			$150,000			**$183,333**
Indirect Costs (IDC)			$16,667			
Total Sample Expenses			$166,667			
Total Sample Expenses (incl. 10% Tax)			**$183,333**			

Annexure C

Payment Schedule to NCC East

	Trigger for Invoice	Payment Amount	Accumulative Amount
Milestone 1	**Upon execution of the Agreement (Preparation and FY2021)**	**$296,389**	**$296,389**
Milestone 2	**FY2022**	**$107,556**	**$403,944**
Milestone 3	**FY2023**	**$107,556**	**$511,500**
Milestone 4	**FY2024**	**$151,556**	**$663,056**

	Trigger for Invoice	Payment Amount per patient	Total Amount
Cohort A	**Receiving an analytical report for a patient**	**$1,222**	**$122,222**
Cohort B	**Receiving an analytical report for a patient**	**$1,222**	**$61,111**
			$183,333

Amount is Tax included.

Annexure D

Assay costs to Invitae

- Resectable cohort of 50 patients, monitored for up to 96 weeks (24 months), with a maxi mum of 10 timepoints per patient
- Non-resectable cohort of 100 patients, monitored for 12 months, with a maximum of 10 ti mepoints per patient including KRAS investigation between tissue and blood
- PCM for 50 resectable T/N WES + 1 PCM timepoint
- PCM analysis of 9 timepoints x 50 patients
- PCM assay for 50 patients in the resectable cohort
- PCM for 100 nonresectable T/N WES + 1 PCM timepoint
- PCM analysis of 9 timepoints x 100 patients
- PCM assay for 100 patients in the nonresectable cohort
- PCM for both cohorts for 2,500 samples
- Logistics support by outside CRO such as CLI
- Total study cost of assays + CRO services + NCC E trial support

AMENDMENT NO. 2 TO MASTER RESEARCH AGREEMENT

This Amendment No. 2 to Master Research Agreement ("**Amendment**") amends the Master Research Agreement by and between ArcherDX, LLC, a subsidiary of Invitae Corporation ("**Archer**") and National Cancer Center ("**NCC**") effective as of January 12, 2022, as amended (the "**Agreement**"). This Amendment shall be effective as of July 13, 2023 (the "**Amendment Effective Date**")

WHEREAS, Archer and NCC have entered into the Agreement and now wish to amend the Agreement.

NOW, THEREFORE, in consideration of the foregoing premises and the mutual covenants set forth below, the parties hereby agree as follows:

1. The second table of Exhibit B, Annexure C is deleted in its entirety and replaced with the following:

	Trigger for Invoice	**Payment Amount per patient**	**Estimated Total Amount**
Cohort A (100 patients)	Receiving an analytical report or a failure report after the collection of the first blood sample from a patient	$1,222	$122,200
Cohort B (50 patients)	Receiving an analytical report or a failure report after the collection of the first blood sample from a patient	$1,222	$61,100
		Total	$183,333

NCC will provide Archer with an invoice only once a year for each milestone payment, and once every 6 months invoice for all patients that receive an analytic report or failure report after the collection of the first sample.

2. All capitalized terms not defined in this Amendment shall have the meaning ascribed to them in the Agreement and, unless otherwise specified, references to Sections refer to Sections of the Agreement.

3. Except as expressly modified herein, the Agreement shall remain in full force and effect in accordance with its terms

4. In the event of any conflict or inconsistency between the terms of this Amendment and the Agreement, the terms of this Amendment will control.

[Signature Page to Follow]

IN WITNESS WHEREOF, the parties have entered into this Agreement as of the Amendment Effective Date.

NATIONAL CANCER CENTER

By: DocuSigned by: 3FE77571AD5948D...

Print Name: Hitoshi Nakagama

Title: President

Date: 7/18/2023

ARCHERDX, LLC a subsidiary of INVITAE CORPORATION

By: DocuSigned by: B90178EAC2D24D3...

Print Name: W. Michael Korn

Title: Chief Medical Officer For Oncology

Date: 2023-Jul-13 | 4:30 PM PDT

INVOICE

National Cancer Center

Invoice#: 23045768
Date (mm/dd/yyyy): 11/07/2023
Payment Due By (mm/dd/yyyy): 01/04/2024

National Cancer Center Hospital East
Director Atsushi Ohtsu
6-5-1 Kashiwanoha Kashiwa,Chiba
277-8577,Japan
Phone:04-7133-1111
Fax:04-7132-2772

ARCHERDX, LLC, A SUBSIDIARY OF INVITAE CORPORATION
2477 55th Street, Boulder, CO 80301
SWAROOP ARADHYA, PHD
HEAD, GLOBAL MEDICAL AFFAIRS

Description	Quantity	Amount
Multicenter study of circulating tumor DNA in patients with Pancreatic Cancer using a personalized panel (ARTEMIS-PC) Cohort A: $1,222.22×47Patients＝$57,444.34 (EST-01-ART1001, EST-01-ART1002, EST-01-ART1003, EST-01-ART1005, EST-01-ART1007, EST-01-ART1008, EST-01-ART1010, EST-01-ART1012, EST-01-ART1014, EST-01-ART1015, EST-01-ART1016, EST-01-ART1017, EST-01-ART1018, EST-01-ART1019, EST-01-ART1020, EST-01-ART1022, EST-01-ART1024, EST-01-ART1025, EST-01-ART1026, EST-01-ART1027, EST-01-ART1028, EST-01-ART1029, EST-01-ART1031, EST-01-ART1033, EST-01-ART1034, EST-01-ART1044, EST-01-ART1050, EST-01-ART1052, EST-01-ART1053, KAN-05-ART1032, KAN-05-ART1035, KAN-05-ART1036, KAN-05-ART1037, KAN-05-ART1038, KAN-05-ART1039, KAN-05-ART1040, KAN-05-ART1041, KAN-05-ART1042, KAN-05-ART1046, KAN-05-ART1047, KAN-05-ART1048, NCC-04-ART1009, NCC-04-ART1011, NCC-04-ART1023, NCC-04-ART1049, SHI-06-ART1043, TOH-02-ART1013) Cohort B: $1,222.22×12 Patients＝$14,666.64 (EST-01-ART5001, EST-01-ART5004, EST-01-ART5006, EST-01-ART5007, EST-01-ART5008, EST-01-ART5009, EST-01-ART5011, KAN-05-ART5005, KIN-08-ART5003, KIN-08-ART5012, KIN-08-ART5019, NCC-04-ART5014)	1	$72,110.98

Total Amount*: **$72,110.98**

Bank Details:

Bank Name	:MUFG Bank,Ltd.
Branch Name	:Tokyo Government and Public Institutions Business Office
Swift Code	:BOTKJPJT
Branch Address	:2-7-1, Marunouchi, Chiyoda-ku, Tokyo, Japan
Bank Account Number	:0021665
Account Name	:NATIONAL CANCER CENTER HOSPITAL EAST

***Please note that bank trasnfer fee is not included in this amount. Please burden this at your expense.**

Your claim can be filed electronically on KCC's website at https://epoc.kccllc.net/invitae

United States Bankruptcy Court for the District of New Jersey

Indicate Debtor against which you assert a claim by checking the appropriate box below. **(Check only one Debtor per claim form.)**

- ☐ Invitae Corporation (Case No. 24-11362 (MBK))
- ☐ ArcherDX Clinical Services, Inc. (Case No. 24-11363 (MBK))
- ☐ ArcherDX, LLC (Case No. 24-11364 (MBK))
- ☐ Genetic Solutions LLC (Case No. 24-11365 (MBK))
- ☐ Genosity, LLC (Case No. 24-11361 (MBK))
- ☐ Ommdom Inc. (Case No. 24-11366 (MBK))

Modified Form 410
Proof of Claim

04/22

Read the instructions before filling out this form. This form is for making a claim for payment in a bankruptcy case. Other than a claim under 11 U.S.C. § 503(b)(9), this form should not be used to make a claim for an administrative expense arising after the commencement of the case.

Filers must leave out or redact information that is entitled to privacy on this form or on any attached documents. Attach redacted copies or any documents that support the claim, such as promissory notes, purchase orders, invoices, itemized statements of running accounts, contracts, judgments, mortgages, and security agreements. **Do not send original documents;** they may be destroyed after scanning. If the documents are not available, explain in an attachment.

A person who files a fraudulent claim could be fined up to $500,000, imprisoned for up to 5 years, or both. 18 U.S.C. §§ 152, 157, and 3571.

Fill in all the information about the claim as of February 13, 2024, the date the case was filed.

Part 1: Identify the Claim

1. **Who is the current creditor?**

NATIONAL CANCER CENTER
Name of the current creditor (the person or entity to be paid for this claim)

Other names the creditor used with the debtor _____

2. **Has this claim been acquired from someone else?**

☑ No

☐ Yes. From whom? _____

3. **Where should notices and payments to the creditor be sent?**

Federal Rule of Bankruptcy Procedure (FRBP) 2002(g)

Where should notices to the creditor be sent?	**Where should payments to the creditor be sent?** (if different)
NATIONAL CANCER CENTER HOSPITAL EAST Name	NATIONAL CANCER CENTER HOSPITAL EAST Name
6-5-1 Kashiwanoha, Number Street	6-5-1 Kashiwanoha, Number Street
Kashiwa-city, CHIBA, 277-8577 City State ZIP Code	Kashiwa-city, CHIBA, 277-8577 City State ZIP Code
JAPAN Country	JAPAN Country
Contact phone +81-4-7133-1111	Contact phone +81-4-7133-1111
Contact email alliance@ml.res.ncc.go.jp	Contact email alliance@ml.res.ncc.go.jp

form claim identifier for electronic payments in chapter 13 (if you use one):
_ _

4. **Does this claim amend one already filed?**

☑ No

☐ Yes. Claim number on court claims registry (if known) _____ Filed on _____ MM / DD / YYYY

5. **Do you know if anyone else has filed a proof of claim for this claim?**

☑ No

☐ Yes. Who made the earlier filing? _____

Part 2: Give Information About the Claim as of the Date the Case Was Filed

6. **Do you have any number you use to identify the debtor?**

☑ No

☐ Yes. Last 4 digits of the debtor's account or any number you use to identify the debtor:

7. **How much is the claim?**

$ 72,110.98 **Does this amount include interest or other charges?**

☑ No

☐ Yes. Attach statement itemizing interest, fees, expenses, or other charges required by Bankruptcy Rule 3001(c)(2)(A).

8. **What is the basis of the claim?**

Examples: Goods sold, money loaned, lease, services performed, personal injury or wrongful death, or credit card.

Attach redacted copies of any documents supporting the claim required by Bankruptcy Rule 3001(c).

Limit disclosing information that is entitled to privacy, such as health care information.

AMENDMENT NO. 2 TO MASTER RESEARCH AGREEMENT

9. **Is all or part of the claim secured?**

☑ No

☐ Yes. The claim is secured by a lien on property.

Nature of property:

☐ Real estate: If the claim is secured by the debtor's principal residence, file a *Mortgage Proof of Claim Attachment* (Official Form 410-A) with this *Proof of Claim*.

☐ Motor vehicle

☐ Other. Describe: _____

Basis for perfection: _____

Attach redacted copies of documents, if any, that show evidence of perfection of a security interest (for example, a mortgage, lien, certificate of title, financing statement, or other document that shows the lien has been filed or recorded.)

Value of property: $_____

Amount of the claim that is secured: $_____

Amount of the claim that is unsecured: $_____ (The sum of the secured and unsecured amount should match the amount in line 7.)

Amount necessary to cure any default as of the date of the petition: $_____

Annual Interest Rate (when case was filed)_____%

☐ Fixed

☐ Variable

10. **Is this claim based on a lease?**

☑ No

☐ Yes. **Amount necessary to cure any default as of the date of the petition.** $_____

11. **Is this claim subject to a right of setoff?**

☑ No

☐ Yes. Identify the property: _____

12. **Is all or part of the claim entitled to priority under 11 U.S.C. § 507(a)?**

A claim may be partly priority and partly nonpriority. For example, in some categories, the law limits the amount entitled to priority.

☑ No

☐ Yes. *Check all that apply:*

Amount entitled to priority

☐ Domestic support obligations (including alimony and child support) under 11 U.S.C. § 507(a)(1)(A) or (a)(1)(B). $_____

☐ Up to $3,350* of deposits toward purchase, lease, or rental of property or services for personal, family, or household use. 11 U.S.C. § 507(a)(7). $_____

☐ Wages, salaries, or commissions (up to $15,150*) earned within 180 days before the bankruptcy petition is filed or the debtor's business ends, whichever is earlier. 11 U.S.C. § 507(a)(4). $_____

☐ Taxes or penalties owed to governmental units. 11 U.S.C. § 507(a)(8). $_____

☐ Contributions to an employee benefit plan. 11 U.S.C. § 507(a)(5). $_____

☐ Other. Specify subsection of 11 U.S.C. § 507(a)(__) that applies. $_____

* Amounts are subject to adjustment on 4/01/25 and every 3 years after that for cases begun on or after the date of adjustment.

13. **Is all or part of the claim entitled to administrative priority pursuant to 11 U.S.C. § 503(b)(9)?**

☑ No

☐ Yes. Indicate the amount of your claim arising from the value of any goods received by the debtor within 20 days before the date of commencement of the above case, in which the goods have been sold to the Debtor in the ordinary course of such Debtor's business. Attach documentation supporting such claim.

$_____

Part 3: Sign Below

The person completing this proof of claim must sign and date it. FRBP 9011(b).

If you file this claim electronically, FRBP 5005(a)(2) authorizes courts to establish local rules specifying what a signature is.

A person who files a fraudulent claim could be fined up to $500,000, imprisoned for up to 5 years, or both. 18 U.S.C. §§ 152, 157, and 3571.

Check the appropriate box:

☑ I am the creditor.

☐ I am the creditor's attorney or authorized agent.

☐ I am the trustee, or the debtor, or their authorized agent. Bankruptcy Rule 3004.

☐ I am a guarantor, surety, endorser, or other codebtor. Bankruptcy Rule 3005.

I understand that an authorized signature on this *Proof of Claim* serves as an acknowledgement that when calculating the amount of the claim, the creditor gave the debtor credit for any payments received toward the debt.
I have examined the information in this *Proof of Claim* and have reasonable belief that the information is true and correct.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on date 4/15/2024
MM / DD / YYYY

DocuSigned by:
75FE06C1EAD8447...

Signature

Print the name of the person who is completing and signing this claim:

Name: Hitoshi (First name) Nakagama (Last name)

Title: President

Company: NATIONAL CANCER CENTER
Identify the corporate servicer as the company if the authorized agent is a servicer.

Address: 5-1-1 Tsukiji
Number Street

Chuo-ku, Tokyo, 104-0045, JAPAN
City State ZIP Code Country

Contact phone: +81-4-7133-1111 Email: alliance@ml.res.ncc.go.jp

Modified Form 410

Instructions for Proof of Claim

United States Bankruptcy Court 12/15

These instructions and definitions generally explain the law. In certain circumstances, such as bankruptcy cases that debtors do not file voluntarily, exceptions to these general rules may apply. You should consider obtaining the advice of an attorney, especially if you are unfamiliar with the bankruptcy process and privacy regulations.

A person who files a fraudulent claim could be fined up to $500,000, imprisoned for up to 5 years, or both.
18 U.S.C. §§ 152, 157 and 3571

How to fill out this form

- **Fill in all of the information about the claim as of the date the case was filed.**

- **Fill in the caption at the top of the form**

- **If the claim has been acquired from someone else, then state the identity of the last party** who owned the claim or was the holder of the claim and who transferred it to you before the initial claim was filed.

- **Attach any supporting documents to this form.**
  Attach redacted copies of any documents that show that the debt exists, a lien secures the debt, or both. (See the definition of *redaction* on the next page.)

  Also attach redacted copies of any documents that show perfection of any security interest or any assignments or transfers of the debt. In addition to the documents, a summary may be added. Federal Rule of Bankruptcy Procedure (called "Bankruptcy Rule") 3001(c) and (d).

- **Do not attach original documents because attachments may be destroyed after scanning.**

- **If the claim is based on delivery health care goods or services, do not disclose confidential health care information. Leave out or redact confidential information both in the claim and in the attached documents.**

PLEASE SEND COMPLETED PROOF(S) OF CLAIM TO:
Invitae Corporation Claims Processing Center
c/o KCC
222 N. Pacific Coast Hwy., Ste. 300
El Segundo, CA 90245

Alternatively, your claim can be filed electronically on KCC's website at https://epoc.kccllc.net/invitae.

- **A *Proof of Claim* form and any attached documents must show only the last 4 digits of any social security number, individual's tax identification number, or financial account number, and only the year of any person's date of birth.** See Bankruptcy Rule 9037.

- **For a minor child, fill in only the child's initials and the full name and address of the child's parent or guardian.** For example, write *A.B., a minor child (John Doe, parent, 123 Main St., City, State).* See Bankruptcy Rule 9037.

Confirmation that the claim has been filed

To receive confirmation that the claim has been filed, either enclose a stamped self-addressed envelope and a copy of this form or you may view a list of filed claims in this case by visiting the Claims and Noticing and Agent's website at http://www.kccllc.net/invitae.

Understand the terms used in this form

Administrative expense: Generally, an expense that arises after a bankruptcy case is filed in connection with operating, liquidating, or distributing that bankruptcy estate.
11 U.S.C. § 503

Claim: A creditor's right to receive payment for a debt that the debtor owed on the date the debtor filed for bankruptcy. 11 U.S.C. §101 (5). A claim may be secured or unsecured.

Claim Pursuant to 11 U.S.C. §503(b)(9): A claim arising from the value of any goods received by the Debtor within 20 days before the date of commencement of the above case, in which the goods have been sold to the Debtor in the ordinary course of the Debtor's business. Attach documentation supporting such claim.

Creditor: A person, corporation, or other entity to whom a debtor owes a debt that was incurred on or before the date the debtor filed for bankruptcy. 11 U.S.C. §101 (10).

Debtor: A person, corporation, or other entity to who is in bankruptcy. Use the debtor's name and case number as shown in the bankruptcy notice you received.
11 U.S.C. §101 (13).

Evidence of perfection: Evidence of perfection of a security interest may include documents showing that a security interest has been filed or recorded, such as a mortgage, lien, certificate of title, or financing statement.

Information that is entitled to privacy: A *Proof of Claim* form and any attached documents must show only the last 4 digits of any social security number, an individual's tax identification number, or a financial account number, only the initials of a minor's name, and only the year of any person's date of birth. If a claim is based on delivering health care goods or services, limit the disclosure of the goods or services to avoid embarrassment or disclosure of confidential health care information. You may later be required to give more information if the trustee or someone else in interest objects to the claim.

Priority claim: A claim within a category of unsecured claims that is entitled to priority under 11 U.S.C. §507(a). These claims are paid from the available money or property in a bankruptcy case before other unsecured claims are paid. Common priority unsecured claims include alimony, child support, taxes, and certain unpaid wages.

Proof of claim: A form that shows the amount of debt the debtor owed to a creditor on the date of the bankruptcy filing. The form must be filed in the district where the case is pending.

Redaction of information: Masking, editing out, or deleting certain information to protect privacy. Filers must redact or leave out information entitled to **privacy** on the *Proof of Claim* form and any attached documents.

Do not file these instructions with your form.

Secured claim under 11 U.S.C. §506(a): A claim backed by a lien on particular property of the debtor. A claim is secured to the extent that a creditor has the right to be paid from the property before other creditors are paid. The amount of a secured claim usually cannot be more than the value of the particular property on which the creditor has a lien. Any amount owed to a creditor that is more than the value of the property normally may be an unsecured claim. But exceptions exist; for example, see 11 U.S.C. § 1322(b) and the final sentence of 1325(a).

Examples of liens on property include a mortgage on real estate a security interest in a car. A lien may be voluntarily granted by a debtor or may be obtained through a court proceeding. In states, a court judgment may be a lien.

Setoff: Occurs when a creditor pays itself with money belonging to the debtor that it is holding, or by canceling a debt it owes to the debtor.

Uniform claim identifier: An optional 24-character identifier that some creditors use to facilitate electronic payment.

Unsecured claim: A claim that does not meet the requirements of a secured claim. A claim may be unsecured in part to the extent that the amount of the claim is more than the value of the property on which a creditor has a lien.

Offers to purchase a claim

Certain entities purchase claims for an amount that is less than the face value of the claims. These entities may contact creditors offering to purchase their claims. Some written communications from these entities may easily be confused with official court documentation or communications from the debtor. These entities do not represent the bankruptcy court, the bankruptcy trustee, or the debtor. A creditor has no obligation to sell its claim. However, if a creditor decides to sell its claim, any transfer of that claim is subject to Bankruptcy Rule 3001(e), any provisions of the Bankruptcy Code (11 U.S.C. § 101 et seq.) that apply, and any orders of the bankruptcy court that apply.