

## PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1  
Stylesheet Version v1.2

EPAS ID: PAT6549585

<b>SUBMISSION TYPE:</b>	CORRECTIVE ASSIGNMENT
<b>NATURE OF CONVEYANCE:</b>	Corrective Assignment to correct the THE NAME OF THE ASSIGNOR WAS INCORRECT. previously recorded on Reel 053974 Frame 0562. Assignor(s) hereby confirms the CHANGED FROM TIZONA THERAPEUTICS, INC. TO TIZONA THERAPEUTICS..

## CONVEYING PARTY DATA

Name	Execution Date
TIZONA THERAPEUTICS	08/25/2020

## RECEIVING PARTY DATA

<b>Name:</b>	TRISHULA THERAPEUTICS, INC.
<b>Street Address:</b>	4000 SHORLINE COURT, SUITE 200
<b>City:</b>	SOUTH SAN FRANCISCO
<b>State/Country:</b>	CALIFORNIA
<b>Postal Code:</b>	94080-2005

## PROPERTY NUMBERS Total: 2

Property Type	Number
Application Number:	63005099
Application Number:	16635526

## CORRESPONDENCE DATA

Fax Number: (415)882-8220

*Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.*

Phone: 4158828222

Email: uspatentmail@klgates.com

Correspondent Name: H THOMAS ANDERTON

Address Line 1: FOUR EMBARCADERO CENTER, SUITE 1200

Address Line 4: SAN FRANCISCO, CALIFORNIA 94111

<b>ATTORNEY DOCKET NUMBER:</b>	1107385.00003
<b>NAME OF SUBMITTER:</b>	H. THOMAS ANDERTON
<b>SIGNATURE:</b>	/H. Thomas Anderton/
<b>DATE SIGNED:</b>	02/11/2021

## Total Attachments: 15

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## PATENT ASSIGNMENT AGREEMENT

This Patent Assignment Agreement (this “Agreement”) is made this 25th day of August 2020 (the “Effective Date”), by Tizona Therapeutics, a Delaware corporation (“Assignor”), in favor of Trishula Therapeutics, Inc. (formerly known as Pearl 030 SpinCo, Inc.), a Delaware corporation and a direct, wholly-owned subsidiary of Tizona (“Assignee”).

WHEREAS, Tizona owns all of the 030 Assets and 030 Newco Liabilities related to the business of 030 Newco;

WHEREAS, Tizona has entered into an Agreement and Plan of Merger (the “Merger Agreement”) with Gilead Sciences, Inc. (the “Non-030 Strategic Counterparty”), Pearl Merger Sub I, Inc. (“Merger Sub”) and Shareholder Representative Services LLC, pursuant to which, at the Effective Time, Merger Sub will be merged with and into Tizona (the “First Merger”) upon the terms and subject to the conditions set forth therein, whereby each issued and outstanding share of capital stock of Tizona will be converted into the right to receive the consideration set forth therein;

WHEREAS, concurrently with the Merger Agreement, Tizona, the Non-030 Strategic Counterparty, Pearl Merger Sub II, Inc. and Shareholder Representative Services LLC have entered into an Option Agreement and Plan of Merger (the “Option Merger Agreement”), pursuant to which the Non-030 Strategic Counterparty is being granted the option (the “Acquisition Option”) to acquire one hundred percent (100%) of the issued and outstanding capital stock and other equity interests of Tizona by effectuating a second merger (the “Second Merger”) on the terms and subject to the conditions set forth in the Option Merger Agreement;

WHEREAS, in order to facilitate the Reorganization, the First Merger and the other transactions contemplated by the Merger Agreement, Assignor and Assignee have entered into (a) that certain Separation Agreement, dated as of July 17, 2020 (the “Separation Agreement”), pursuant to which Assignor will contribute certain assets to Assignee, which contribution of non-patent assets is reflected in that certain Contribution Agreement dated as of the date hereof (the “Contribution Agreement”), and which contribution of patent assets, *i.e.*, the patents set forth on Schedule A hereto (the “Business Patent Rights”) is provided in this Agreement, (b) the Transition Services Agreement, and (c) the 030 Collaboration Novation Agreement with AbbVie;

WHEREAS, in order to facilitate the Reorganization, the First Merger and the other transactions contemplated by the Merger Agreement, Assignor and Assignee are entering into (a) this Agreement and (b) the Contribution Agreement.

WHEREAS, pursuant to this Agreement, among other things, prior to and as a condition to Non-030 Strategic Counterparty’s obligation to consummate the First Merger, Tizona will consummate the Reorganization;

WHEREAS, the board of directors of Tizona has determined that the Reorganization and the transactions contemplated by the Separation Agreement are advisable and in the best interests of Tizona and its stockholders;

WHEREAS, in furtherance thereof, the board of directors of Tizona has approved the Reorganization and the transactions contemplated by the Separation Agreement;

WHEREAS, Assignee desires to acquire all of Assignor's right, title and interest in and to the Business Patent Rights; and

WHEREAS, Assignor and Assignee are entering into this Agreement for the purpose of recording the assignment of patents to Assignee with any applicable governmental authorities, including the U.S. Patent and Trademark Office (or similar foreign office or agency).

NOW, THEREFORE, for good and valuable consideration, the adequacy and receipt of which is hereby acknowledged, the parties hereby agree as follows:

1. Assignor hereby sells, conveys, assigns, transfers, and delivers to Assignee all of Assignor's right, title, and interest in and to the Business Patent Rights, including (a) any provisional applications, substitutions, continuations, continuations-in-part, divisionals, renewals, reissues, revisions, extensions, reexaminations, foreign equivalents and all patents granted thereon, (b) all rights therein provided by the laws of the United States or any foreign country, multinational treaties or conventions, (c) any and all income, royalties, damages and payments due or payable at the Effective Date or thereafter in connection with the Business Patent Rights (including damages and payments for past, current, or future infringements, misappropriations, dilutions or other violations thereof), (d) the right to sue and bring claims or causes of action for infringement, misappropriation, or other violation thereof (whether such infringement, misappropriation, dilution, or other violation occurs prior to, on or after the Effective Date) and (e) any and all corresponding rights that, now or hereafter, may be secured throughout the world with respect thereto.
2. This Agreement and its provisions will be binding upon Assignor's successors and legal representatives, and will inure to the benefit of the successors, legal representatives, and assigns of Assignee and all future assigns thereof.
3. Notwithstanding anything to the contrary in this Agreement, (a) no provision hereof will in any way supersede, modify, replace, restrict, limit, or in any way affect the rights and obligations of the parties under the Separation Agreement, and (b) in the event of any conflict between the terms of this Agreement and the Separation Agreement, the terms of the Separation Agreement will control.
4. Assignee shall be responsible for preparing and filing all instruments and documents necessary to effect the assignment of the Business Patent Rights to Assignee and/or its Affiliates, including all costs and expenses of preparing and recording country-specific assignments and legalization of signatures (where required). Assignor shall (and shall cause its Affiliates to) to reasonably cooperate with the foregoing, at Assignee's sole cost and expense.
5. This Agreement has been executed and delivered by Assignor to Assignee for the purpose of recording this Agreement with any applicable governmental authorities, including the U.S. Patent and Trademark Office (or similar foreign office or agency),

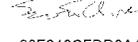
and the parties hereto are hereby authorized to record this Agreement with any such governmental authorities.

6. This Agreement shall be governed by, and construed and enforced in accordance with, the substantive Laws of the State of Delaware, without regard to any conflicts of law provisions thereof that would result in the application of the laws of any other jurisdiction.
7. All capitalized terms used but not defined in this Agreement have the meanings given to them in the Separation Agreement.
8. If any one or more provisions of this Agreement is held to be invalid, illegal or unenforceable, the affected provisions of this Agreement shall be curtailed and limited only to the extent necessary to bring it within the applicable legal requirements and the validity, legality and enforceability of the remaining provisions of this Agreement shall not in any way be affected or impaired thereby.
9. Any notice, request or other document to be given hereunder to any party hereto shall be given in the manner specified in Section 11.6 of the Separation Agreement.
10. This Agreement may be amended by the parties hereto at any time by execution of an instrument in writing signed by both parties. A party's consent to or waiver, express or implied, of the other party's breach of its obligations hereunder shall not be deemed to be or construed as a consent to or waiver of any other breach of the same or any other obligations of such breaching party. A party's failure to complain of any act, or failure to act, by the other party, to declare the other party in default, to insist upon the strict performance of any obligation or condition of this Agreement or to exercise any right or remedy consequent upon a breach thereof, no matter how long such failure continues, shall not constitute a waiver by such party of its rights hereunder, of any such breach, or of any other obligation or condition.
11. This Agreement, the Separation Agreement, the Ancillary Agreements and the Exhibits and Schedules referenced herein and therein and attached hereto or thereto, constitute the entire agreement and understanding between the parties with respect to the subject matter hereof and thereof and supersede all prior negotiations, agreements, commitments, writings, courses of dealing and understandings with respect to the subject matter hereof and thereof.
12. This Agreement may be executed in counterparts, each of which when taken together shall constitute one and the same agreement, and may be executed through the use of facsimiles or .pdf documents.

*[Signature page follows.]*

IN WITNESS WHEREOF, Assignor and Assignee have executed or caused this Agreement to be executed as of the date first written above.

TIZONA THERAPEUTICS

By: \_\_\_\_\_  
DocuSigned by:  
  
33F046CFDD6A4E9...

Name: Scott Clarke

Title: Chief Executive Officer

TRISHULA THERAPEUTICS, INC.

By: \_\_\_\_\_  
DocuSigned by:  
  
33F046CFDD6A4E9...

Name: Scott Clarke

Title: Chief Executive Officer

SCHEDULE A

Business Patent Rights

*[To be added]*

TTX-030 ELN Entries – Schedule A Rider

Case Type	Application Number	Application Status	Country	Filing Date	Invention Title	Inventors
PRO	62/539,527	Expired	United States of America	31-Jul-2017	ANTI-CD39 ANTIBODIES, COMPOSITIONS COMPRISING ANTI-CD39 ANTIBODIES AND METHODS OF USING ANTI-CD39 ANTIBODIES	SOROS, Vanessa; KOVALENKO, Maria; CORBIN, John; BEERS, Courtney; WIDBOOM, Paul F; WARFILED, Joseph R
ORD	PCT/US2018/044449	Expired	Patent Cooperation Treaty	30-Jul-2018	ANTI-CD39 ANTIBODIES, COMPOSITIONS COMPRISING ANTI-CD39 ANTIBODIES AND METHODS OF USING ANTI-CD39 ANTIBODIES	SOROS, Vanessa; KOVALENKO, Maria; CORBIN, John; BEERS, Courtney; WIDBOOM, Paul F; WARFILED, Joseph R
ORD	16/049,736	Pending	United States of America	30-Jul-2018	ANTI-CD39 ANTIBODIES, COMPOSITIONS COMPRISING ANTI-CD39 ANTIBODIES AND METHODS OF USING ANTI-CD39 ANTIBODIES	SOROS, Vanessa; KOVALENKO, Maria; CORBIN, John; BEERS, Courtney; WIDBOOM, Paul F; WARFILED, Joseph R
ORD	20180102152	Pending	Argentina	31-Jul-2018	ANTI-CD39 ANTIBODIES, COMPOSITIONS COMPRISING ANTI-CD39 ANTIBODIES AND METHODS OF USING ANTI-CD39 ANTIBODIES	SOROS, Vanessa; KOVALENKO, Maria; CORBIN, John; BEERS, Courtney; WIDBOOM, Paul F; WARFILED, Joseph R
ORD	524/2018	Pending	Pakistan	31-Jul-2017	ANTI-CD39 ANTIBODIES, COMPOSITIONS COMPRISING ANTI-CD39 ANTIBODIES AND METHODS OF USING ANTI-CD39 ANTIBODIES	SOROS, Vanessa; KOVALENKO, Maria; CORBIN, John; BEERS, Courtney; WIDBOOM, Paul F; WARFILED, Joseph R

**TTX-030 ELN Entries – Schedule A Rider**

Case Type	Application Number	Application Status	Country	Filing Date	Invention Title	Inventors
ORD	2018/35759	Pending	Gulf Cooperation Council	31-Jul-2018	ANTI-CD39 ANTIBODIES, COMPOSITIONS COMPRISING ANTI-CD39 ANTIBODIES AND METHODS OF USING ANTI-CD39 ANTIBODIES	SOROS, Vanessa; KOVALENKO, Maria; CORBIN, John; BEERS, Courtney; WIDBOOM, Paul F; WARFILED, Joseph R
ORD	107126546	Pending	Taiwan	31-Jul-2018	ANTI-CD39 ANTIBODIES, COMPOSITIONS COMPRISING ANTI-CD39 ANTIBODIES AND METHODS OF USING ANTI-CD39 ANTIBODIES	SOROS, Vanessa; KOVALENKO, Maria; CORBIN, John; BEERS, Courtney; WIDBOOM, Paul F; WARFILED, Joseph R
ORD	2018312251	Pending	Australia	30-Jul-2018	ANTI-CD39 ANTIBODIES, COMPOSITIONS COMPRISING ANTI-CD39 ANTIBODIES AND METHODS OF USING ANTI-CD39 ANTIBODIES	SOROS, Vanessa; KOVALENKO, Maria; CORBIN, John; BEERS, Courtney; WIDBOOM, Paul F; WARFILED, Joseph R
ORD	CA 3071540	Pending	Canada	30-Jul-2018	ANTI-CD39 ANTIBODIES, COMPOSITIONS COMPRISING ANTI-CD39 ANTIBODIES AND METHODS OF USING ANTI-CD39 ANTIBODIES	SOROS, Vanessa; KOVALENKO, Maria; CORBIN, John; BEERS, Courtney; WIDBOOM, Paul F; WARFILED, Joseph R
ORD	CN201880064027.3	Pending	China (People's Republic)	30-Jul-2018	ANTI-CD39 ANTIBODIES, COMPOSITIONS COMPRISING ANTI-CD39 ANTIBODIES AND METHODS OF USING ANTI-CD39 ANTIBODIES	SOROS, Vanessa; KOVALENKO, Maria; CORBIN, John; BEERS, Courtney; WIDBOOM, Paul F; WARFILED, Joseph R
ORD	EP18841649.9	Published	European Patent Convention	30-Jul-2018	ANTI-CD39 ANTIBODIES, COMPOSITIONS COMPRISING ANTI-CD39 ANTIBODIES AND METHODS OF USING ANTI-CD39 ANTIBODIES	SOROS, Vanessa; KOVALENKO, Maria; CORBIN, John; BEERS, Courtney; WIDBOOM, Paul F; WARFILED, Joseph R
ORD	IN 202017004872	Pending	India	30-Jul-2018	ANTI-CD39 ANTIBODIES, COMPOSITIONS COMPRISING ANTI-CD39 ANTIBODIES AND METHODS OF USING ANTI-CD39 ANTIBODIES	SOROS, Vanessa; KOVALENKO, Maria; CORBIN, John; BEERS, Courtney; WIDBOOM, Paul F; WARFILED, Joseph R
ORD	IL 272367	Pending	Israel	30-Jul-2018	ANTI-CD39 ANTIBODIES, COMPOSITIONS COMPRISING ANTI-CD39 ANTIBODIES AND METHODS OF USING ANTI-CD39 ANTIBODIES	SOROS, Vanessa; KOVALENKO, Maria; CORBIN, John; BEERS, Courtney; WIDBOOM, Paul F; WARFILED, Joseph R
ORD	JP 2020-506222	Pending	Japan	30-Jul-2018	ANTI-CD39 ANTIBODIES, COMPOSITIONS COMPRISING ANTI-CD39 ANTIBODIES AND METHODS OF USING ANTI-CD39 ANTIBODIES	SOROS, Vanessa; KOVALENKO, Maria; CORBIN, John; BEERS, Courtney; WIDBOOM, Paul F; WARFILED, Joseph R

TTX-030 ELN Entries – Schedule A Rider

Case Type	Application Number	Application Status	Country	Filing Date	Invention Title	Inventors
ORD	10-2020-7005353	Pending	Korea	30-Jul-2018	ANTI-CD39 ANTIBODIES, COMPOSITIONS COMPRISING ANTI-CD39 ANTIBODIES AND METHODS OF USING ANTI-CD39 ANTIBODIES	SOROS, Vanessa; KOVALENKO, Maria; CORBIN, John; BEERS, Courtney; WIDBOOM, Paul F; WARFILED, Joseph R
ORD	MX/a/2020/001270	Pending	Mexico	30-Jul-2018	ANTI-CD39 ANTIBODIES, COMPOSITIONS COMPRISING ANTI-CD39 ANTIBODIES AND METHODS OF USING ANTI-CD39 ANTIBODIES	SOROS, Vanessa; KOVALENKO, Maria; CORBIN, John; BEERS, Courtney; WIDBOOM, Paul F; WARFILED, Joseph R
ORD	NZ 761274	Pending	New Zealand	30-Jul-2018	ANTI-CD39 ANTIBODIES, COMPOSITIONS COMPRISING ANTI-CD39 ANTIBODIES AND METHODS OF USING ANTI-CD39 ANTIBODIES	SOROS, Vanessa; KOVALENKO, Maria; CORBIN, John; BEERS, Courtney; WIDBOOM, Paul F; WARFILED, Joseph R
ORD	PH 1-2020-500240	Pending	Philippines	30-Jul-2018	ANTI-CD39 ANTIBODIES, COMPOSITIONS COMPRISING ANTI-CD39 ANTIBODIES AND METHODS OF USING ANTI-CD39 ANTIBODIES	SOROS, Vanessa; KOVALENKO, Maria; CORBIN, John; BEERS, Courtney; WIDBOOM, Paul F; WARFILED, Joseph R
ORD	RU 2020108524	Pending	Russia	30-Jul-2018	ANTI-CD39 ANTIBODIES, COMPOSITIONS COMPRISING ANTI-CD39 ANTIBODIES AND METHODS OF USING ANTI-CD39 ANTIBODIES	SOROS, Vanessa; KOVALENKO, Maria; CORBIN, John; BEERS, Courtney; WIDBOOM, Paul F; WARFILED, Joseph R
ORD	SG 11202000820P	Pending	Singapore	30-Jul-2018	ANTI-CD39 ANTIBODIES, COMPOSITIONS COMPRISING ANTI-CD39 ANTIBODIES AND METHODS OF USING ANTI-CD39 ANTIBODIES	SOROS, Vanessa; KOVALENKO, Maria; CORBIN, John; BEERS, Courtney; WIDBOOM, Paul F; WARFILED, Joseph R
ORD	2020/00608	Pending	South Africa	30-Jul-2018	ANTI-CD39 ANTIBODIES, COMPOSITIONS COMPRISING ANTI-CD39 ANTIBODIES AND METHODS OF USING ANTI-CD39 ANTIBODIES	SOROS, Vanessa; KOVALENKO, Maria; CORBIN, John; BEERS, Courtney; WIDBOOM, Paul F; WARFILED, Joseph R
ORD	A 2020 00866	Pending	Ukraine	30-Jul-2018	ANTI-CD39 ANTIBODIES, COMPOSITIONS COMPRISING ANTI-CD39 ANTIBODIES AND METHODS OF USING ANTI-CD39 ANTIBODIES	SOROS, Vanessa; KOVALENKO, Maria; CORBIN, John; BEERS, Courtney; WIDBOOM, Paul F; WARFILED, Joseph R
ORD	16/635,526	Pending	United States of America	30-Jan-2020	ANTI-CD39 ANTIBODIES, COMPOSITIONS COMPRISING ANTI-CD39 ANTIBODIES AND METHODS OF USING ANTI-CD39 ANTIBODIES	SOROS, Vanessa; KOVALENKO, Maria; CORBIN, John; BEERS, Courtney; WIDBOOM, Paul F; WARFILED, Joseph R
ORD	CH 202000281	Pending	Chile	30-Jul-2018	ANTI-CD39 ANTIBODIES, COMPOSITIONS COMPRISING ANTI-CD39 ANTIBODIES AND METHODS OF USING ANTI-CD39 ANTIBODIES	SOROS, Vanessa; KOVALENKO, Maria; CORBIN, John; BEERS, Courtney; WIDBOOM, Paul F; WARFILED, Joseph R
ORD	2020-101	Pending	Costa Rica	30-Jul-2018	ANTI-CD39 ANTIBODIES, COMPOSITIONS COMPRISING ANTI-CD39 ANTIBODIES AND METHODS OF USING ANTI-CD39 ANTIBODIES	SOROS, Vanessa; KOVALENKO, Maria; CORBIN, John; BEERS, Courtney; WIDBOOM, Paul F; WARFILED, Joseph R

TTX-030 ELN Entries – Schedule A Rider

Case Type	Application Number	Application Status	Country	Filing Date	Invention Title	Inventors
ORD	P2020-0021	Pending	Dominican Republic	30-Jul-2018	ANTI-CD39 ANTIBODIES, COMPOSITIONS COMPRISING ANTI-CD39 ANTIBODIES AND METHODS OF USING ANTI-CD39 ANTIBODIES	SOROS, Vanessa; KOVALENKO, Maria; CORBIN, John; BEERS, Courtney; WIDBOOM, Paul F; WARFILED, Joseph R
ORD	1-2020-00016	Pending	Guatemala	30-Jul-2018	ANTI-CD39 ANTIBODIES, COMPOSITIONS COMPRISING ANTI-CD39 ANTIBODIES AND METHODS OF USING ANTI-CD39 ANTIBODIES	SOROS, Vanessa; KOVALENKO, Maria; CORBIN, John; BEERS, Courtney; WIDBOOM, Paul F; WARFILED, Joseph R
ORD	P00202001473	Pending	Indonesia	30-Jul-2018	ANTI-CD39 ANTIBODIES, COMPOSITIONS COMPRISING ANTI-CD39 ANTIBODIES AND METHODS OF USING ANTI-CD39 ANTIBODIES	SOROS, Vanessa; KOVALENKO, Maria; CORBIN, John; BEERS, Courtney; WIDBOOM, Paul F; WARFILED, Joseph R
ORD	PI202000520	Pending	Malaysia	30-Jul-2018	ANTI-CD39 ANTIBODIES, COMPOSITIONS COMPRISING ANTI-CD39 ANTIBODIES AND METHODS OF USING ANTI-CD39 ANTIBODIES	SOROS, Vanessa; KOVALENKO, Maria; CORBIN, John; BEERS, Courtney; WIDBOOM, Paul F; WARFILED, Joseph R
ORD	92984-01	Pending	Panama	30-Jul-2018	ANTI-CD39 ANTIBODIES, COMPOSITIONS COMPRISING ANTI-CD39 ANTIBODIES AND METHODS OF USING ANTI-CD39 ANTIBODIES	SOROS, Vanessa; KOVALENKO, Maria; CORBIN, John; BEERS, Courtney; WIDBOOM, Paul F; WARFILED, Joseph R
ORD	166-2020	Pending	Peru	30-Jul-2018	ANTI-CD39 ANTIBODIES, COMPOSITIONS COMPRISING ANTI-CD39 ANTIBODIES AND METHODS OF USING ANTI-CD39 ANTIBODIES	SOROS, Vanessa; KOVALENKO, Maria; CORBIN, John; BEERS, Courtney; WIDBOOM, Paul F; WARFILED, Joseph R
ORD	2001000592	Pending	Thailand	30-Jul-2018	ANTI-CD39 ANTIBODIES, COMPOSITIONS COMPRISING ANTI-CD39 ANTIBODIES AND METHODS OF USING ANTI-CD39 ANTIBODIES	SOROS, Vanessa; KOVALENKO, Maria; CORBIN, John; BEERS, Courtney; WIDBOOM, Paul F; WARFILED, Joseph R
ORD	1-2020-01000	Pending	Vietnam	30-Jul-2018	ANTI-CD39 ANTIBODIES, COMPOSITIONS COMPRISING ANTI-CD39 ANTIBODIES AND METHODS OF USING ANTI-CD39 ANTIBODIES	SOROS, Vanessa; KOVALENKO, Maria; CORBIN, John; BEERS, Courtney; WIDBOOM, Paul F; WARFILED, Joseph R
ORD	BR1120200020125	Pending	Brazil	30-Jul-2018	ANTI-CD39 ANTIBODIES, COMPOSITIONS COMPRISING ANTI-CD39 ANTIBODIES AND METHODS OF USING ANTI-CD39 ANTIBODIES	SOROS, Vanessa; KOVALENKO, Maria; CORBIN, John; BEERS, Courtney; WIDBOOM, Paul F; WARFILED, Joseph R
ORD	NC2020/0001983	Pending	Colombia	30-Jul-2018	ANTI-CD39 ANTIBODIES, COMPOSITIONS COMPRISING ANTI-CD39 ANTIBODIES AND METHODS OF USING ANTI-CD39 ANTIBODIES	SOROS, Vanessa; KOVALENKO, Maria; CORBIN, John; BEERS, Courtney; WIDBOOM, Paul F; WARFILED, Joseph R

TTX-030 ELN Entries – Schedule A Rider

Case Type	Application Number	Application Status	Country	Filing Date	Invention Title	Inventors
PRO	62/808,714	Expired	United States of America	21-Feb-2019	COMBINATION THERAPY INVOLVING ANTI-CD39 ANTIBODIES AND ANTI-PD-1 OR ANTI-PD-L1 ANTIBODIES	MOESTA, Achim; BEERS, Courtney
ORD	PCT/US2020/019320	Pending	Patent Cooperation Treaty	21-Feb-2019	COMBINATION THERAPY INVOLVING ANTI-CD39 ANTIBODIES AND ANTI-PD-1 OR ANTI-PD-L1 ANTIBODIES	MOESTA, Achim; BEERS, Courtney
PRO	63/005,099	Pending	Provisional	03-Apr-2020	COMBINATION THERAPY INVOLVING ANTI-CD39 AND ADOPTIVE CELL THERAPY	

**TTX-030 ELN Entries – Schedule A Rider**

ELN Number	Experiment Title	Project	Category
EXP-19-GH4307	Antigen-down ELISA to optimize use of recombinant mouse CD39 using in-house A31 antibody	CD39 [Discovery of anti-CD39 antibodies], TTX-030 [Development of TTX-030]	Biochemical
EXP-19-HF0530	anti-human CD39 Colorimetric Sandwich ELISA with TZ-706, A1, and TTX-030 antibodies	CD39 [Discovery of anti-CD39 antibodies], TTX-030 [Development of TTX-030]	Biochemical
EXP-19-HF0528	anti-human CD39 sandwich model ELISA of Mel28 (WT and CD39-KO) and CHO (high and low CD39) lysate	TTX-030 [Development of TTX-030], CD39 [Discovery of anti-CD39 antibodies]	Biochemical
EXP-19-HF0527	anti-human CD39 sandwich model ELISA of Mel28 (WT and CD39-KO) lysate and supernatant	TTX-030 [Development of TTX-030], CD39 [Discovery of anti-CD39 antibodies]	Biochemical
EXP-19-GH4355	Anti-TTX030 Sandwich ELISA 78 Capture & B116 Detection	CD39 [Discovery of anti-CD39 antibodies], TTX-030 [Development of TTX-030]	Biochemical
EXP-19-GH4357	Anti-TTX030 Sandwich ELISA 78 Capture & B116 Detection in 5% huSerum	CD39 [Discovery of anti-CD39 antibodies], TTX-030 [Development of TTX-030]	Biochemical
EXP-19-GH4354	Anti-TTX030 Sandwich ELISA 78 Capture & B116 Detection	CD39 [Discovery of anti-CD39 antibodies], TTX-030 [Development of TTX-030]	Biochemical
EXP-19-GH4348	anti-TTX030 Sandwich ELISA using 78-capture mAb and 116-Detection mAb	TTX-030 [Development of TTX-030]	Biochemical
EXP-19-GH4353	Anti-TTX030 Sandwich ELISA, Back-to-Basics	CD39 [Discovery of anti-CD39 antibodies], TTX-030 [Development of TTX-030]	Biochemical
EXP-19-GH4331	Cytokine and T cell Proliferation of PBMC (D1002) treated with KN-62 +/- ATP +/- TTX030	TTX-030 [Development of TTX-030], CD39 [Discovery of anti-CD39 antibodies]	Biochemical
EXP-19-HF0529	Detection of CD39 in SW1116 and HT-1376 cells via flow cytometry	CD39 [Discovery of anti-CD39 antibodies], TTX-030 [Development of TTX-030]	Biochemical
EXP-19-GH4359	mCD39 and mCD73 Detection in B16F10, MCF8, LWT1, & SM1WT1 cell lines via Flow Cytometry	CD39 [Discovery of anti-CD39 antibodies], TTX-030 [Development of TTX-030]	Biochemical
EXP-19-HF0519	Optimization of recombinant Human CD39 using colorimetric sandwich-model ELISA and in-house antibodies: 70# (capture) and A1 (detection)	TTX-030 [Development of TTX-030], CD39 [Discovery of anti-CD39 antibodies]	Biochemical
EXP-19-HF0517	Optimization of recombinant Human CD39 using colorimetric sandwich-model ELISA and in-house antibodies: A1 (capture) and 70# (detection)	TTX-030 [Development of TTX-030], CD39 [Discovery of anti-CD39 antibodies]	Biochemical
EXP-19-HF0516	Sandwich model ELISA optimization of anti-CD39 antibodies (A1, TZ-701, 703, 706)	CD39 [Discovery of anti-CD39 antibodies], TTX-030 [Development of TTX-030]	Biochemical
EXP-19-HF0515	Sandwich model ELISA optimization of anti-CD39 antibodies (TZ-701, 703, 706)	CD39 [Discovery of anti-CD39 antibodies], TTX-030 [Development of TTX-030]	Biochemical
EXP-19-HM6608	2019-06-12 FPCL IEX analysis for TTX030 acidic species	TTX-030 [Development of TTX-030]	Biochemical
EXP-19-GU1507	Adimab Round 3 - Antibody concentrations - corrected	CD39 [Discovery of anti-CD39 antibodies], TTX-030 [Development of TTX-030]	Biochemical
EXP-19-FE3879	Aliquoting of Probiogen TTX-030, sample ID 171080218	TTX-030 [Development of TTX-030]	Biochemical
EXP-17-FE3844	CD39 Receptor Occupancy on Human PBMCs	TTX-030 [Development of TTX-030], CD39 [Discovery of anti-CD39 antibodies]	Biochemical
EXP-17-FE3843	Comparing binding of TTX-030 on MEL28 KO cells	CD39 [Discovery of anti-CD39 antibodies], TTX-030 [Development of TTX-030]	Biochemical
EXP-17-FE3847	MEL28 ECD binding of anti-CD39 antibodies	TTX-030 [Development of TTX-030], CD39 [Discovery of anti-CD39 antibodies]	Biochemical
EXP-19-FE3890	ProBioGen Pools	TTX-030 [Development of TTX-030]	Biochemical
EXP-19-FE3897	Reconstitution of A2-4635 from Volocchem	TTX-030 [Development of TTX-030], CD39 [Discovery of anti-CD39 antibodies]	Biochemical
EXP-20-HK0212	31895 TTX-030 hG1AAA Transient Transfection	CD39 [Discovery of anti-CD39 antibodies]	Biochemical
EXP-19-GZ5790	ADI-31895 (TTX-030) hG1_AAA Construct Generation	CD39 [Discovery of anti-CD39 antibodies]	Biochemical
EXP-20-HK0030	ADI-31895 hG1AAA Transient Transfection	CD39 [Discovery of anti-CD39 antibodies]	Biochemical
EXP-20-HL5466	TTX-030 31895 hG1AAA, Palivizumab hG1AAA Transient Transfection (1U)	CD39 [Discovery of anti-CD39 antibodies]	Biochemical
EXP-20-HL5461	TTX-030 hKappa N940 Site-Directed Mutagenesis	CD39 [Discovery of anti-CD39 antibodies]	Biochemical
EXP-20-HL5462	TTX-030 N940 hKappa Transient Transfection	CD39 [Discovery of anti-CD39 antibodies]	Biochemical
EXP-19-GM7007	Purification of TTX-030 Rabbit Anti-Id	TTX-030 [Development of TTX-030]	Biochemical
EXP-17-FH3574	QC of TTX-030 from ProBiogen	TTX-030 [Development of TTX-030]	Biochemical
EXP-17-FH3571	TTX-030 hG4 stability and activity post reformulation	CD39 [Discovery of anti-CD39 antibodies]	Biochemical
EXP-17-FH3570	TTX-030 hG4 stability test post concentrating to 30mg/ml and freeze/thaw	CD39 [Discovery of anti-CD39 antibodies]	Biochemical
EXP-17-FQ6226	120217_Sec1 LCMS Assays for MEL28 Supernatants (in tins)	CD39 [Discovery of anti-CD39 antibodies], TTX-030 [Development of TTX-030]	Biochemical
EXP-19-FL2906	Cellular Binding Kinetics of TTX-030 (Sapinyne Report) - IgG4 on MEL28	CD39 [Discovery of anti-CD39 antibodies]	Biochemical
EXP-19-FL2907	Cellular Binding Kinetics of TTX-030 (Sapinyne Report) - IgG4 on MEL28-KO	CD39 [Discovery of anti-CD39 antibodies]	Biochemical
EXP-19-FL2935	Cloning M34Q and M34I point mutants of TTX-030	CD39 [Discovery of anti-CD39 antibodies]	Biochemical
EXP-19-FL2955	Intact Mass Spec of PBG-TTX-030	CD39 [Discovery of anti-CD39 antibodies]	Biochemical
EXP-19-FL2947	Production of monoclonal anti-TTX-030 idotype mAbs at ATUM for release to KCAS	CD39 [Discovery of anti-CD39 antibodies]	Biochemical
EXP-19-FL2905	Screening commercial anti-ENTPD antibodies in cellular ELISAs	CD39 [Discovery of anti-CD39 antibodies]	Biochemical
EXP-19-FL2910	Screening TTX-030 on h/CD39-KI MEL28-KO_W3 cells	CD39 [Discovery of anti-CD39 antibodies]	Biochemical
EXP-19-FL2904	TTX-030 Specifically Binds Human and Cynomolgus CD39 but not Mouse CD39	CD39 [Discovery of anti-CD39 antibodies]	Biochemical
EXP-19-FL2903	TTX-030 specifically binds human ENTPD1	CD39 [Discovery of anti-CD39 antibodies]	Biochemical
EXP-17-FQ2219	171004_TZ-31895 Fab v hG64 1h preinc in buffer MEL-28 kinetic	CD39 [Discovery of anti-CD39 antibodies]	Biochemical
EXP-17-FQ2220	171004_TZ-31895 Fab v hG64 25h preinc in media MEL-28 kinetic	CD39 [Discovery of anti-CD39 antibodies]	Biochemical
EXP-17-FQ2222	171006 Octet binding kinetics of TTX-030 mutants	TTX-030 [Development of TTX-030], CD39 [Discovery of anti-CD39 antibodies]	Biochemical
EXP-19-FQ2225	171012 MEL-5 TZ-31895 Fab v hG4 kinetic inhibition assay	CD39 [Discovery of anti-CD39 antibodies]	Biochemical
EXP-19-FQ2233	180102 Calculation of mean KD and stdev for INO study report 17-0024VT	CD39 [Discovery of anti-CD39 antibodies], TTX-030 [Development of TTX-030]	Biochemical
EXP-19-FQ2286	180306 Octet QC of anti-Id (TTX-030) pools of purified S/N for CRL cyto studies	TTX-030 [Development of TTX-030]	Biochemical
EXP-19-FQ2237	180510 Addendum to EXP-17-FE1912	CD39 [Discovery of anti-CD39 antibodies], TTX-030 [Development of TTX-030]	Biochemical
EXP-19-FQ2238	180510 Explanation of User-defined GraphPad Prism mixed, partial inhibition equation used for all enzyme kinetics assays	CD39 [Discovery of anti-CD39 antibodies], TTX-030 [Development of TTX-030]	Biochemical
EXP-19-FQ2258	180713 Octet binding kinetics and specificity of anti-TTX-030 mAbs	TTX-030 [Development of TTX-030]	Biochemical
EXP-19-FQ2259	180718 Binning of anti-TTX-030 clones (Octet)	TTX-030 [Development of TTX-030]	Biochemical
EXP-19-FQ2260	180719 Further characterization anti-TTX-030 clones +/- rhCD39-ECD (Octet)	TTX-030 [Development of TTX-030]	Biochemical
EXP-19-FQ2267	180727-30 Biotinylation of anti-Id clone 116 and characterization	TTX-030 [Development of TTX-030]	Biochemical
EXP-19-FQ2268	180801 Sandwich ELISA using anti-Id clone 78 as capture mAb and 116 as detection mAb	TTX-030 [Development of TTX-030]	Biochemical
EXP-19-FQ2269	180808 Biotinylation of 1 mg of anti-Id clone 116 at 10.1 biotin:mAb ratio	TTX-030 [Development of TTX-030]	Biochemical
EXP-19-HC6627	180925-26 Further Octet QC of recombinant Fc gamma R protein using B66 & TTX-030	CD39 [Discovery of anti-CD39 antibodies], TTX-030 [Development of TTX-030]	Biochemical
EXP-19-HC6630	181002 Recombinant Fc gamma receptor ELISA with TTX-030	TTX-030 [Development of TTX-030], CD39 [Discovery of anti-CD39 antibodies]	Biochemical
EXP-19-HC6643	191114 & 191213 Characterization of TTX-030 N940 mutant binding to rhCD39-ECD via Octet	TTX-030 [Development of TTX-030], CD39 [Discovery of anti-CD39 antibodies]	Biochemical
EXP-20-HC6649	Figures for TTX-030 enzymology manuscript	TTX-030 [Development of TTX-030], CD39 [Discovery of anti-CD39 antibodies]	Biochemical
EXP-19-GX1308	Aliquoting TTX-030 (batch 1711-201-tox) into Smaller Vials	TTX-030 [Development of TTX-030]	Biochemical
EXP-19-GX1380	Aliquoting of TTX-030 non-GMP BP	TTX-030 [Development of TTX-030]	Biochemical
EXP-20-HW1725	ATUM Produced anti-hCD39 hC Antibodies	TTX-030 [Development of TTX-030], CD39 [Discovery of anti-CD39 antibodies]	Biochemical
EXP-19-GX1334	Combining (ATUM) TTX-030 Anti-Id mAbs to Make a Polyclonal	TTX-030 [Development of TTX-030]	Biochemical
EXP-19-GH7690	Dialysis of Probiogen TTX-030 into 1X PBS	TTX-030 [Development of TTX-030]	Biochemical
EXP-20-GX1395	Purification and Analysis of TTX-030 Charge Variant	TTX-030 [Development of TTX-030]	Biochemical
EXP-19-GX1384	Purification of 27557 hG4 and hG1AAA (100mL)	TTX-030 [Development of TTX-030]	Biochemical
EXP-19-GX1370	Purification of 4x TTX-030 hG4 sortags	TTX-030 [Development of TTX-030]	Biochemical
EXP-19-GX1330	Purification of anti-CD39 Innate I394 (200mL)	CD39 [Discovery of anti-CD39 antibodies]	Biochemical
EXP-19-GX1329	Purification of anti-CD39 Innate I394 (50mL)	CD39 [Discovery of anti-CD39 antibodies]	Biochemical
EXP-20-GX1392	Purification of anti-CD39 Surface Antibodies	TTX-030 [Development of TTX-030]	Biochemical
EXP-19-GX1319	Purification of Innate/Oregia hCD39 (I394, I395, I396, I399) (30mL)	CD39 [Discovery of anti-CD39 antibodies]	Biochemical
EXP-20-HW1708	Purification of 58F-360 hG4 (100mL)	TTX-030 [Development of TTX-030]	Biochemical
EXP-19-GX1386	Purification of TTX-030 hG1AAA (1U)	TTX-030 [Development of TTX-030]	Biochemical
EXP-20-HW1718	Purification of TTX-030 hG1AAA (500mL)	TTX-030 [Development of TTX-030]	Biochemical
EXP-20-HW1710	Purification of TTX-030 hG1AAA (500mL)	TTX-030 [Development of TTX-030]	Biochemical
EXP-19-GX1387	Purification of TTX-030 N940 Mutant	TTX-030 [Development of TTX-030]	Biochemical
EXP-19-GX1367	Purification of TTX-030 hG1AAA_avitag+biotin and 31905 hG1AAA_avitag+biotin	TTX-030 [Development of TTX-030]	Biochemical
EXP-19-GX1356	Purification of TZ-706 mG1_avitag (100mL)	CD39 [Discovery of anti-CD39 antibodies], TTX-030 [Development of TTX-030]	Biochemical
EXP-19-GX1309	QC of anti-TTX030 idotype mAbs from ATUM to Ship to KCAS	CD39 [Discovery of anti-CD39 antibodies]	Biochemical
EXP-19-FZ2524	Affinity of TTX-030 to human and mouse CD39 (ENTPD1)	CD39 [Discovery of anti-CD39 antibodies]	Biochemical
EXP-19-FZ2525	Affinity of TTX-030 to human ENTPD2, 3, and 8	CD39 [Discovery of anti-CD39 antibodies]	Biochemical
EXP-20-FZ2538	Anti-CD39 ELISA on TTX-030 Charge variant	CD39 [Discovery of anti-CD39 antibodies]	Biochemical
EXP-20-FZ2551	Binding of TTX-030 Charge Variants via Flow Cytometry	CD39 [Discovery of anti-CD39 antibodies]	Biochemical
EXP-20-FZ2552	Binding of TTX-030 Charge Variants via Flow Cytometry repeat	CD39 [Discovery of anti-CD39 antibodies]	Biochemical
EXP-20-FZ2554	Binding of TTX-030 N940 via Flow Cytometry	CD39 [Discovery of anti-CD39 antibodies]	Biochemical
EXP-20-FZ2553	Short-term ATPase Inhibition of TTX-030 charge variant	CD39 [Discovery of anti-CD39 antibodies]	Biochemical
EXP-20-FZ2556	Short-term ATPase Inhibition of TTX-030 charge variant repeat 2	CD39 [Discovery of anti-CD39 antibodies]	Biochemical
EXP-19-HN3901	CD39 expression on HT1376 cells	TTX-030 [Development of TTX-030]	Functional
EXP-19-HN3908	Inflammasome Assay #1 Titration of TTX-030 in Donor 3368 with anti CD73	TTX-030 [Development of TTX-030]	Functional
EXP-20-HN3912	Inflammasome Assay #2 Titration of TTX-030 in Donor 4147 with anti CD73 & A2A1	CD39 [Discovery of anti-CD39 antibodies]	Functional
EXP-20-HN3913	Inflammasome Assay #3 Donor 39750 TTX-030, BCL, A2A1 and P2X7	CD39 [Discovery of anti-CD39 antibodies]	Functional
EXP-19-HN3905	Inflammasome Development Test #1	TTX-030 [Development of TTX-030]	Functional
EXP-19-HN3906	Inflammasome Development Test #2	TTX-030 [Development of TTX-030]	Functional
EXP-19-HN3907	Inflammasome Development Test #3	TTX-030 [Development of TTX-030]	Functional
EXP-19-HN3902	MOLP-8 and HT1376 TTX-030 binding	TTX-030 [Development of TTX-030]	Functional
EXP-19-HN3904	MOLP-8 short term activity assay by CTG and Malachite with TTX-030	TTX-030 [Development of TTX-030]	Functional
EXP-19-HN3903	P2X7 Antibody validation on PBMCs	TTX-030 [Development of TTX-030]	Functional
EXP-19-HN3900	WIL2-NS TTX-030 and B940 binding	TTX-030 [Development of TTX-030]	Functional
EXP-19-GH4375	D5 EPMA A2aR inhibitor +/- ATP PBMC Assay (D0240 & D3801)	CD39 [Discovery of anti-CD39 antibodies], TTX-030 [Development of TTX-030]	Functional
EXP-19-GH4300	120817_4d PBMC proliferation +/- TTX-030 Immunocult or rPBM optimization	TTX-030 [Development of TTX-030]	Functional
EXP-19-HF0523	4 & 24 Hour NK Killing Assay of 721 parental cells	TTX-030 [Development of TTX-030], CD39 [Discovery of anti-CD39 antibodies]	Functional
EXP-19-GH4311	4d PBMC Assay: TTX-030 Titration in SFM	TTX-030 [Development of TTX-030]	Functional
EXP-19-GH4322	4d PBMC KN-62 +/- TTX-030 +/- ATP (50 or DuM) D1002	TTX-030 [Development of TTX-030], CD39 [Discovery of anti-CD39 antibodies]	Functional
EXP-19-GH4305	4d PBMC Proliferation: Optimizing hIL-2 and Immunocult in Serum Free Media (SFM)	TTX-030 [Development of TTX-030]	Functional
EXP-19-GH4318	4day PBMC Assay TTX-030 +/- A2aR inhibitor in SFM	TTX-030 [Development of TTX-030], CD39 [Discovery of anti-CD39 antibodies]	Functional
EXP-19-HF0525	4hr NK Killing Assay of 721 parental cells with TTX-030	TTX-030 [Development of TTX-030]	Functional
EXP-19-HF0503	96hr Incubation of PBMCs (D4289) with serially diluted Mel28 supernatant (Parental or CD39 KO)	CD39 [Discovery of anti-CD39 antibodies], TTX-030 [Development of TTX-030]	Functional
EXP-19-GH4330	A2aR inhibitor Optimization and Efficiency D1002	CD39 [Discovery of anti-CD39 antibodies], TTX-030 [Development of TTX-030]	Functional
EXP-19-GH4328	A2aR inhibitor range optimization D3248	CD39 [Discovery of anti-CD39 antibodies], TTX-030 [Development of TTX-030]	Functional
EXP-19-GH4325	A2aR inhibitor Range Optimization Donor 1002	TTX-030 [Development of TTX-030], CD39 [Discovery of anti-CD39 antibodies]	Functional
EXP-19-GH4350	Anti-TTX030 Sandwich ELISA using 78 capture mAb and 116-Detection mAb, 2nd Attempt	TTX-030 [Development of TTX-030], CD39 [Discovery of anti-CD39 antibodies]	Functional
EXP-19-GH4301	ATP Titration of Overnight NK Killing Assay of 721 parental cells	TTX-030 [Development of TTX-030]	Functional
EXP-19-GH4341	Cytokine Response in Stimulated PBMCs (S Donors)	CD39 [Discovery of anti-CD39 antibodies], TTX-030 [Development of TTX-030]	Functional
EXP-19-GH4303	D1002 and D103 Immunocult optimization in SFM + TTX030	TTX-030 [Development of TTX-030]	Functional
EXP-19-GH4389	Detection of CD38, CD39, and CD73 in SW49 and HCT116 cells	CD39 [Discovery of anti-CD39 antibodies]	Functional

TTX-030 ELN Entries – Schedule A Rider

ELN Number	Experiment Title	Project	Category
EXP-19-GH4394	Flow cytometry detection of CD39 and CD73 in HCT116, SW48, and RKO cells	CD39 [Discovery of anti-CD39 antibodies]	Functional
EXP-19-HF0531	IFN $\gamma$ and IL-9 MSD of PBMCs treated with ATP and/or TTX-030	CD39 [Discovery of anti-CD39 antibodies], TTX-030 [Development of TTX-030]	Functional
EXP-19-GH4373	Itos A2AR inhibitor +/- ATP PBMC Assay (D0240 & D0388)	CD39 [Discovery of anti-CD39 antibodies], TTX-030 [Development of TTX-030]	Functional
EXP-19-GH4372	Itos A2AR inhibitor +/- ATP PBMC Assay (D0301 & D0162)	TTX-030 [Development of TTX-030], CD39 [Discovery of anti-CD39 antibodies]	Functional
EXP-19-GH4320	KN 62 and A438079 titration optimization with ATP PBMC Donor 1002	CD39 [Discovery of anti-CD39 antibodies], TTX-030 [Development of TTX-030]	Functional
EXP-19-GH4361	CD39 and mCD73 Detection in B16F10, MC38, LW11, SM1W11, and BCL1 Cell lines via Flow cytometry	TTX-030 [Development of TTX-030], CD39 [Discovery of anti-CD39 antibodies]	Functional
EXP-19-GH4323	MSD Cytokine and T cell proliferation analysis of PBMCs (D0231 & D0248) treated with KN-62 +/- ATP (50 or 0CEPM)	CD39 [Discovery of anti-CD39 antibodies], TTX-030 [Development of TTX-030]	Functional
EXP-19-GH4334	MSD Cytokine and T cell proliferation analysis of PBMCs (D103) treated with KN-62 +/- ATP +/- TTX030	CD39 [Discovery of anti-CD39 antibodies], TTX-030 [Development of TTX-030]	Functional
EXP-19-GH4314	MSD Cytokine and T cell Proliferation of PBMC (D1002) treated with TTX-030 Titration in SFM (repeat)	TTX-030 [Development of TTX-030]	Functional
EXP-19-GH4316	MSD Cytokine and T cell proliferation of PBMCs (D1002) treated with ATP [0-125nM] Titration in SFM	CD39 [Discovery of anti-CD39 antibodies], TTX-030 [Development of TTX-030]	Functional
EXP-19-GH4340	MSD Cytokine and T cell Proliferation of PBMCs (D0622) treated with TTX030 +/- Itos A2AR inhibitor in cRPMI.	CD39 [Discovery of anti-CD39 antibodies], TTX-030 [Development of TTX-030]	Functional
EXP-19-HF0521	Overnight NK Killing Assay of 721 parental cells with TTX-030	CD39 [Discovery of anti-CD39 antibodies], TTX-030 [Development of TTX-030]	Functional
EXP-19-HF0506	PanT <sub>H</sub> (D0679) cells treated with Mal28 supernatant (WT or CD39-KO) +/- ATP	CD39 [Discovery of anti-CD39 antibodies]	Functional
EXP-19-GH4326	PBMC Assay KN-62 +/- ATP +/- TTX030 D1002	CD39 [Discovery of anti-CD39 antibodies], TTX-030 [Development of TTX-030]	Functional
EXP-19-GH4327	PBMC Assay KN-62 +/- ATP +/- TTX030 D0368	CD39 [Discovery of anti-CD39 antibodies], TTX-030 [Development of TTX-030]	Functional
EXP-19-GH4339	PBMC Assay KN-62 +/- ATP +/- TTX030 D0622	CD39 [Discovery of anti-CD39 antibodies], TTX-030 [Development of TTX-030]	Functional
EXP-19-GH4319	T cell proliferation analysis of PBMCs (D1002) treated A2AR inhibitors +/- CGS-21680 (5CEPM) in cRPMI	TTX-030 [Development of TTX-030], CD39 [Discovery of anti-CD39 antibodies]	Functional
EXP-19-GH4324	Treg:PanT (D0435) Co-culture + TTX030 + ATP	TTX-030 [Development of TTX-030], CD39 [Discovery of anti-CD39 antibodies]	Functional
EXP-19-GH4380	TTX030 [50 (ng/ml) +/- 5 mM ATP +/- 0.5 CEPM A2AR inhibitor for 24 and 72 hours, Donor 3248	CD39 [Discovery of anti-CD39 antibodies], TTX-030 [Development of TTX-030]	Functional
EXP-19-GH4383	TTX030 [50 (ng/ml) +/- 5 mM ATP +/- 0.5 CEPM A2AR inhibitor for 24 and 72 hours, Donor 3801	CD39 [Discovery of anti-CD39 antibodies], TTX-030 [Development of TTX-030]	Functional
EXP-19-GH4336	TTX030 +/- Itos A2AR inhibitor in cRPMI D0368	CD39 [Discovery of anti-CD39 antibodies], TTX-030 [Development of TTX-030]	Functional
EXP-19-FE3880	Activity of anti-mouse CD39 antibody clone A31 on mouse splenocytes and B cells - Assay No. 2	TTX-030 [Development of TTX-030], CD39 [Discovery of anti-CD39 antibodies]	Functional
EXP-19-GU1500	Activity of the anti-mouse CD39 antibody clones A31 and B66 - Assay No. 6	CD39 [Discovery of anti-CD39 antibodies]	Functional
EXP-19-FE3867	Additional Analysis of ATPase Inhibition in 721.221 cells (2-day)	TTX-030 [Development of TTX-030]	Functional
EXP-19-FE3866	Additional analysis of ATPase Inhibition in OAW42 (2-day assay)	TTX-030 [Development of TTX-030]	Functional
EXP-19-FE3888	Additional analysis of EXP-18-F06056 - calculating standard deviation	TTX-030 [Development of TTX-030]	Functional
EXP-19-FE3864	Additional analysis of overnight ATPase Inhibition Assay in SK-MEL-28	TTX-030 [Development of TTX-030]	Functional
EXP-19-FE3865	Additional analysis of overnight ATPase inhibition in human PBMC	TTX-030 [Development of TTX-030]	Functional
EXP-19-FE3882	Adenosine generation in SK-MEL-28 - Calculation of Avg and SD of LC/MS and Enzyght data sets	TTX-030 [Development of TTX-030]	Functional
EXP-19-FE3873	Analysis of short-term ATPase Inhibition by TTX-030 in human monocytes	TTX-030 [Development of TTX-030]	Functional
EXP-19-FE3875	Analysis of Short-term ATPase Inhibition by TTX-030 on cynomolgus monkey monocytes	TTX-030 [Development of TTX-030]	Functional
EXP-19-FE3877	Analysis of short-term ATPase inhibition by TTX-030 on HAEC cells	TTX-030 [Development of TTX-030]	Functional
EXP-19-FE3874	Analysis of short-term ATPase inhibition by TTX-030 on human B cells	TTX-030 [Development of TTX-030]	Functional
EXP-19-FE3876	Analysis of short-term ATPase inhibition by TTX-030 on HUVEC cells	TTX-030 [Development of TTX-030]	Functional
EXP-19-FE3872	Analysis of short-term ATPase inhibition by TTX-030 on SK-MEL-5	TTX-030 [Development of TTX-030]	Functional
EXP-19-FE3868	Analysis of short-term ATPase Inhibition in MEL28 cells	TTX-030 [Development of TTX-030]	Functional
EXP-19-FE3870	Analysis of short-term ATPase inhibition in OAW42 cells	TTX-030 [Development of TTX-030]	Functional
EXP-19-FE3871	Analysis of short-term ATPase inhibition of TTX-030 on 721.221 cells	TTX-030 [Development of TTX-030]	Functional
EXP-19-FE3869	Analysis of Short-term ATPase Inhibition of TTX-030 on human Tregs	TTX-030 [Development of TTX-030]	Functional
EXP-19-GU1511	Anti-mouse CD39 antibody binding - BCL1 cells	CD39 [Discovery of anti-CD39 antibodies], TTX-030 [Development of TTX-030]	Functional
EXP-19-FE3885	ATP accumulation in CD39KO SK-MEL-28	TTX-030 [Development of TTX-030]	Functional
EXP-19-GU1510	Binding of anti-mouse CD39 antibodies to C57BL/6 splenocytes	TTX-030 [Development of TTX-030], CD39 [Discovery of anti-CD39 antibodies]	Functional
EXP-19-GU1501	Binding of anti-mouse CD39 antibody clones A31 and B66 to C57BL/6 and BALB/c B cells	CD39 [Discovery of anti-CD39 antibodies]	Functional
EXP-17-FE3842	Comparison of TTX-030 buffer formulations in short-term MEL28 assay	TTX-030 [Development of TTX-030], CD39 [Discovery of anti-CD39 antibodies]	Functional
EXP-19-FE3886	Evaluating effects of CD39 antibodies on ATPase and ADPase activity by Yegutkin	TTX-030 [Development of TTX-030], CD39 [Discovery of anti-CD39 antibodies]	Functional
EXP-19-FE3884	Generation of CD39KO SK-MEL-28 cell line	TTX-030 [Development of TTX-030], CD39 [Discovery of anti-CD39 antibodies]	Functional
EXP-19-FE3891	ProBioGen TTX-030 lot 1711091117	TTX-030 [Development of TTX-030]	Functional
EXP-19-FE3895	ProBioGen TTX-030 lot 1711211117	TTX-030 [Development of TTX-030]	Functional
EXP-19-GU1504	Short-term CD39 ATPase Inhibition Assay - TRIS vs. TBS	TTX-030 [Development of TTX-030]	Functional
EXP-19-GU1502	Staining 721.221 cells with TTX-030 D650	TTX-030 [Development of TTX-030]	Functional
EXP-17-FE3845	Testing ProBioGen TTX-030/PBS on MEL28 in a short-term inhibition assay	TTX-030 [Development of TTX-030]	Functional
EXP-19-FE3898	Thaw and expansion of CD39KO SK-MEL-28 subclone W3	TTX-030 [Development of TTX-030], CD39 [Discovery of anti-CD39 antibodies]	Functional
EXP-20-HT2803	Day 3, 4, and 5 examination of Murine T cell activation and proliferation with titration	TTX-030 [Development of TTX-030], CD39 [Discovery of anti-CD39 antibodies]	Functional
EXP-20-HT2800	Mouse T cell titration and activation with dymabactin	CD39 [Discovery of anti-CD39 antibodies], TTX-030 [Development of TTX-030]	Functional
EXP-19-F06041	051317_pAg stimulation of gamma delta T cells_3day development	CD39 [Discovery of anti-CD39 antibodies], TTX-030 [Development of TTX-030]	Functional
EXP-19-F06059	070918_Cytokine secretion from unstimulated PBMCs treated with TTX-030- time course	CD39 [Discovery of anti-CD39 antibodies], TTX-030 [Development of TTX-030]	Functional
EXP-19-F06060	071718_screening of 4 ADI-27549 variants for inhibition of pAg hydrolysis	CD39 [Discovery of anti-CD39 antibodies], TTX-030 [Development of TTX-030]	Functional
EXP-19-F06064	081718_Evaluating activity of TTX-030 on SK-MEL-28 cells vs supernatants Cell Titer GLO	CD39 [Discovery of anti-CD39 antibodies], TTX-030 [Development of TTX-030]	Functional
EXP-17-F06029	082517_Titration of ATP, ADP, AMP +/- BHNA on PBMC proliferation	CD39 [Discovery of anti-CD39 antibodies], TTX-030 [Development of TTX-030]	Functional
EXP-19-F06065	082918_Evaluating activity of CD73 Ab on SK-MEL-28 cells vs supernatants-AMPGLO	CD39 [Discovery of anti-CD39 antibodies], TTX-030 [Development of TTX-030]	Functional
EXP-19-F06067	090718_Evaluating activity of TTX-030 on SK-MEL-28 cells vs supernatants-Cell Titer GLO_repeat	CD39 [Discovery of anti-CD39 antibodies], TTX-030 [Development of TTX-030]	Functional
EXP-17-F06030	091117_4d PBMC proliferation assay ATP/ADP/AMP titration with TTX-030 or CP1-444	CD39 [Discovery of anti-CD39 antibodies], TTX-030 [Development of TTX-030]	Functional
EXP-17-F06032	092517_4d PBMC proliferation/cytokines assay with ATP/ADP/AMP	CD39 [Discovery of anti-CD39 antibodies], TTX-030 [Development of TTX-030]	Functional
EXP-17-F06033	092617_rerun of 092517 MSD assay_20k dilution	CD39 [Discovery of anti-CD39 antibodies], TTX-030 [Development of TTX-030]	Functional
EXP-17-F06035	092917_4d PBMC T cell dose response with ATP/ADP/AMP titration: proliferation/cytokine readout	CD39 [Discovery of anti-CD39 antibodies], TTX-030 [Development of TTX-030]	Functional
EXP-19-F06053	092917_Set 3 LCMS Adenosine/inosine from MEL-28 cells (Tris vs media)	CD39 [Discovery of anti-CD39 antibodies], TTX-030 [Development of TTX-030]	Functional
EXP-17-F06034	092917_Time course and dose response of TTX-030 on proliferation/cytokine responses	TTX-030 [Development of TTX-030], CD39 [Discovery of anti-CD39 antibodies]	Functional
EXP-19-F06057	100217_Cytokine secretion in unstimulated PBMCs treated with TTX-030_run 1	CD39 [Discovery of anti-CD39 antibodies], TTX-030 [Development of TTX-030]	Functional
EXP-19-F06058	101817_Titration of TTX-030 on stimulated and unstimulated PBMCs	CD39 [Discovery of anti-CD39 antibodies], TTX-030 [Development of TTX-030]	Functional
EXP-19-F06056	103017_Cytokine secretion in unstimulated PBMCs treated with TTX-030_repeat	CD39 [Discovery of anti-CD39 antibodies], TTX-030 [Development of TTX-030]	Functional
EXP-17-F06028	103117_4d PBMC proliferation and cytokine analysis_TTX-030 and ATP	TTX-030 [Development of TTX-030], CD39 [Discovery of anti-CD39 antibodies]	Functional
EXP-19-F06044	110117_Enzyght on MEL-28 subs used for LCMS set 3_TTX-030 titration	CD39 [Discovery of anti-CD39 antibodies], TTX-030 [Development of TTX-030]	Functional
EXP-17-F06037	110617_4d PBMC proliferation and cytokines with MED9447 +/- AMP	TTX-030 [Development of TTX-030], CD39 [Discovery of anti-CD39 antibodies]	Functional
EXP-17-F06036	110617_4d PBMC proliferation_TTX-030 and AZ-4635 AZA with ATP or ADO	TTX-030 [Development of TTX-030], CD39 [Discovery of anti-CD39 antibodies]	Functional
EXP-19-F06046	111017_screening of Adimab naive output for inhibitors of CD39 mediated pAg hydrolysis_Set 1	CD39 [Discovery of anti-CD39 antibodies], TTX-030 [Development of TTX-030]	Functional
EXP-17-F06038	111317_4d PBMC stimulation +/- TTX_030 cytokine analysis_6 donors	TTX-030 [Development of TTX-030], CD39 [Discovery of anti-CD39 antibodies]	Functional
EXP-19-F06049	111317_Cell binding of ADI-27549 to MEL-28 cells	CD39 [Discovery of anti-CD39 antibodies]	Functional
EXP-19-F06048	111617_Hit confirmation of ADI-27549 as inhibitor of CD39 mediated pAg hydrolysis	CD39 [Discovery of anti-CD39 antibodies], TTX-030 [Development of TTX-030]	Functional
EXP-19-F06045	111617_screening of Adimab naive output for inhibitors of CD39 mediated pAg hydrolysis_Set 2	CD39 [Discovery of anti-CD39 antibodies]	Functional
EXP-19-F06054	111717_Set 4 LCMS ADO/INO from MEL-28 cells-ATP timecourse +/- TTX-030 and AMP +/- MED9447	CD39 [Discovery of anti-CD39 antibodies], TTX-030 [Development of TTX-030]	Functional
EXP-19-F06042	112117_4d stimulated PBMC, panT, CD4, CD8 +/- ATP proliferation and cytokines with TTX-030	TTX-030 [Development of TTX-030], CD39 [Discovery of anti-CD39 antibodies]	Functional
EXP-19-F06039	120517_PBMC proliferation and cytokines +/- ATP with TTX-030 and B940 variants	TTX-030 [Development of TTX-030], CD39 [Discovery of anti-CD39 antibodies]	Functional
EXP-19-F06047	120517_screening of Adimab naive output for inhibitors of CD39 mediated pAg hydrolysis_Set 3 and hit confirmation from set 1/2	CD39 [Discovery of anti-CD39 antibodies]	Functional
EXP-19-F06055	120817_Set 5 LCMS ADO/INO detection: Testing effects of B940 antibodies and TTX-030 on ADO inhibition in MEL-28 cells.	CD39 [Discovery of anti-CD39 antibodies], TTX-030 [Development of TTX-030]	Functional
EXP-17-F06027	120817_TTX-030 and A1 titration, ATP PBMC proliferation and cytokines	TTX-030 [Development of TTX-030], CD39 [Discovery of anti-CD39 antibodies]	Functional
EXP-19-F06040	121217_PBMC proliferation and cytokines +/- ATP with TTX-030 and B940 variants_REPEAT	TTX-030 [Development of TTX-030], CD39 [Discovery of anti-CD39 antibodies]	Functional
EXP-19-F06043	121817_4d PBMC proliferation +/- TTX-030 Immunocult titration (cRPMI vs Stem Cell SFM) D103	TTX-030 [Development of TTX-030], CD39 [Discovery of anti-CD39 antibodies]	Functional
EXP-19-EQ1385	TTX-030 Does Not Induce Antibody-Dependent Cell-Mediated Cytotoxicity	CD39 [Discovery of anti-CD39 antibodies]	Functional
EXP-17-F02218	170929 TZ-31895 Fab v HgG4 1 h preinc in media MEL-28 kinetic	CD39 [Discovery of anti-CD39 antibodies]	Functional
EXP-17-F02224	171011 MEL-28 kinetic inhibition assay with TTX-030 M34 mutants	TTX-030 [Development of TTX-030], CD39 [Discovery of anti-CD39 antibodies]	Functional
EXP-19-F02229	171026 TZ-31895 kinetic HUVEC ATP hydrolysis inhibition	TTX-030 [Development of TTX-030], CD39 [Discovery of anti-CD39 antibodies]	Functional
EXP-19-F02231	171101 TTX-030 inhibition of NTPs/dNTPs	CD39 [Discovery of anti-CD39 antibodies], TTX-030 [Development of TTX-030]	Functional
EXP-19-F02241	171107 MEL-28 kinetic inhibition assay MEDI-9447 using AMP substrate	CD39 [Discovery of anti-CD39 antibodies]	Functional
EXP-19-F02249	171116 MEDI-9447 kinetic AMPase inhibition MEL-28 & MEL-28-CD39KO	CD39 [Discovery of anti-CD39 antibodies]	Functional
EXP-19-F02235	171201 MEL-28 kinetic inhibition TTX-030 vs I391, I392, I392HAG011 h preinc buffer	CD39 [Discovery of anti-CD39 antibodies], TTX-030 [Development of TTX-030]	Functional
EXP-19-F02234	171206 MEL-28 kinetic inhibition TTX-030 I391 & I392HAG011 h buffer preinc	CD39 [Discovery of anti-CD39 antibodies], TTX-030 [Development of TTX-030]	Functional
EXP-19-F02266	171212 MEDI-9447 & TTX-030 combo in MEL-28 cellular kinetic inhibition assay	TTX-030 [Development of TTX-030], CD39 [Discovery of anti-CD39 antibodies]	Functional
EXP-19-F02270	171213 Screening anti-mCD39 clones for inhibition of pAgs	CD39 [Discovery of anti-CD39 antibodies]	Functional
EXP-19-F02272	171219-20 Indirect pAg inhibition via TTX-030 and/or ATP using MEL-28	CD39 [Discovery of anti-CD39 antibodies], TTX-030 [Development of TTX-030]	Functional
EXP-19-F02275	180125 Comparison of enzymatic inhibition anti-CD73 mAbs- O/N assay	CD39 [Discovery of anti-CD39 antibodies]	Functional
EXP-19-F02247	180216 Enzymatic inhibition MEL-28 hCD39 KO mCD39 Ki by A31 & B66	CD39 [Discovery of anti-CD39 antibodies]	Functional
EXP-19-F02294	180409 binding of anti-CD73 mAbs to mouse and human recombinant CD73	CD39 [Discovery of anti-CD39 antibodies]	Functional
EXP-19-HC6629	180508 Calculations of mean and stdev for TTX-030 kinetic ATPase inhibition assays using MEL-28 cells for IND report 17-09-IVT	CD39 [Discovery of anti-CD39 antibodies], TTX-030 [Development of TTX-030]	Functional
EXP-19-HC6629	180528 Enzyme kinetics of SK-MEL-28 hydrolysis of all NTPs and ADP	CD39 [Discovery of anti-CD39 antibodies]	Functional
EXP-19-HC6633	2018104 Maximal inhibition of SK-MEL-28 NTPase activity by TTX-030	CD39 [Discovery of anti-CD39 antibodies], TTX-030 [Development of TTX-030]	Functional
EXP-19-EY3780	05312017 Round 3 binding on MELS in nM	CD39 [Discovery of anti-CD39 antibodies]	Functional
EXP-19-EY3768	06152017 Top 10 MELS and 721s nM	CD39 [Discovery of anti-CD39 antibodies]	Functional
EXP-19-EY3769	06262017 human T-cell binding (nM)	CD39 [Discovery of anti-CD39 antibodies]	Functional
EXP-19-EY3783	20170726 CMV recall assay CD39	CD39 [Discovery of anti-CD39 antibodies]	Functional
EXP-19-EY3770	20180206 CD3/CD28 stim TTX-030	CD39 [Discovery of anti-CD39 antibodies]	Functional
EXP-19-EY3771	20180219 CD3/CD28 stim TTX-030 multiple donors	CD39 [Discovery of anti-CD39 antibodies]	Functional
EXP-19-EY3772	20180227 CD3/CD28 stim TTX-030 combo pembro	CD39 [Discovery of anti-CD39 antibodies]	Functional
EXP-19-EY3774	20180323 CD3/CD28 stim AZA	CD39 [Discovery of anti-CD39 antibodies]	Functional
EXP-19-EY3775	20180402 CD3/CD28 stim CD73 and AZA	CD39 [Discovery of anti-CD39 antibodies]	Functional
EXP-19-EY3776	20180410 CD3/CD8 stim AZA CD73 B940 HAO	CD39 [Discovery of anti-CD39 antibodies]	Functional
EXP-19-EY3787	20180502 Itos and TTX-030	CD39 [Discovery of anti-CD39 antibodies]	Functional
EXP-19-EY3777	20180515 AZA Itos	CD39 [Discovery of anti-CD39 antibodies]	Functional
EXP-19-EY3791	20180711 2-way MLR time points	CD39 [Discovery of anti-CD39 antibodies]	Functional

TTX-030 ELN Entries – Schedule A Rider

ELN Number	Experiment Title	Project	Category
EXP-18-EY3792	20180725 & 20180802 2-way MLR with Pembro	CD39 [Discovery of anti-CD39 antibodies]	Functional
EXP-19-HG9002	20180829-20180926 DC phenotyping	CD39 [Discovery of anti-CD39 antibodies]	Functional
EXP-18-EY3793	20180911 CD3/CD28 stim on 10 donors	CD39 [Discovery of anti-CD39 antibodies]	Functional
EXP-19-EY3795	201809142-way MLR	CD39 [Discovery of anti-CD39 antibodies]	Functional
EXP-19-EY3796	20180925 3-way MLR	CD39 [Discovery of anti-CD39 antibodies]	Functional
EXP-19-HG9001	20181010 DC 1-way MLR	CD39 [Discovery of anti-CD39 antibodies]	Functional
EXP-19-HG9000	20190321 Macrophage phenotyping	CD39 [Discovery of anti-CD39 antibodies]	Functional
EXP-18-EY3782	Average EC50 of TTX-030 binding to multiple cell types	CD39 [Discovery of anti-CD39 antibodies]	Functional
EXP-19-HG9008	CD3/CD28 stim with ICS	CD39 [Discovery of anti-CD39 antibodies]	Functional
EXP-20-FI2585	Hydrolysis of TTP GTP CTP UTP on MEL28 cells	CD39 [Discovery of anti-CD39 antibodies]	Functional
EXP-20-FI2555	Short-term ATPase Inhibition of TTX-030 charge variant repeat	CD39 [Discovery of anti-CD39 antibodies]	Functional
EXP-20-FI2557	Short-term ATPase Inhibition of TTX-030 N94D	CD39 [Discovery of anti-CD39 antibodies]	Functional
EXP-18-GH4312	A31 & B66 PK Mouse Study ELISA	TTX-030 [Development of TTX-030], CD39 [Discovery of anti-CD39 antibodies]	In Vivo
EXP-18-GH4313	B66 PK Mouse Study ELISA (20ug redo)	CD39 [Discovery of anti-CD39 antibodies], TTX-030 [Development of TTX-030]	In Vivo
EXP-18-GH4302	rCD39 ECD ELISA to measure TTX-030 in cyno serum samples	TTX-030 [Development of TTX-030]	In Vivo
EXP-20-HT2802	In ex vivo MCA205 compared to in vitro cells	TTX-030 [Development of TTX-030], CD39 [Discovery of anti-CD39 antibodies]	In Vivo
EXP-20-FN2953	Growth Curves of mCD39, hCD39, and parental MC38 tumors	CD39 [Discovery of anti-CD39 antibodies]	In Vivo
EXP-19-FN2936	IC50 range finding for Gemcitabine and Docetaxel with MC38 and CT26 cells	CD39 [Discovery of anti-CD39 antibodies], TTX-030 [Development of TTX-030]	In Vivo
EXP-18-FN2932	QIMR Metastasis model data	TTX-030 [Development of TTX-030], CD39 [Discovery of anti-CD39 antibodies]	In Vivo
EXP-18-FN2931	QIMR subcutaneous tumor data	CD39 [Discovery of anti-CD39 antibodies], TTX-030 [Development of TTX-030]	In Vivo
EXP-18-FN2929	TTX-030 comparison to CD39 KO in NCG mice bearing SK-Mel-28 tumors	TTX-030 [Development of TTX-030]	In Vivo
EXP-19-FO6077	070919_721.221 xenograft CD39 RO and EHC	CD39 [Discovery of anti-CD39 antibodies], TTX-030 [Development of TTX-030]	In Vivo
EXP-19-HN3911	CD39 Supernatant Activity Inhibition in Wil2NS, Mino, Molp-8 and HT1376	TTX-030 [Development of TTX-030]	Translational
EXP-18-GH4315	Cytokine Response in unstimulated PBMCs (5 Donors)	CD39 [Discovery of anti-CD39 antibodies], TTX-030 [Development of TTX-030]	Translational
EXP-19-HG3520	Detection of recombinant CD39 and Med28 lysate and supernatant with anti-human CD39 antibodies (T2-706 and A1) using Sandwich-model ELISA	CD39 [Discovery of anti-CD39 antibodies], TTX-030 [Development of TTX-030]	Translational
EXP-18-GH4306	Re-analysis of Cyno serum PK samples - 10, 30, and 100 mpk	TTX-030 [Development of TTX-030]	Translational
EXP-18-GH4304	rCD39 ECD ELISA to measure TTX-030 in cyno serum samples (redo Group 2 & 3)	TTX-030 [Development of TTX-030]	Translational
EXP-20-HR8504	Comparison of CD39 immunoprecipitation efficacy between TTX-030 biotinylated, unlabeled and Ab 27577. Detection of CD39 on cell lysates.	CD39 [Discovery of anti-CD39 antibodies]	Translational
EXP-19-HR8501	First attempt to detect extracellular CD39 from exosomes or from conditioned media after immunoprecipitation. IP from cell lysates in parallel as a control	CD39 [Discovery of anti-CD39 antibodies]	Translational
EXP-18-FE3878	Activity of anti-mouse CD39 antibody (clone A31) on mouse splenocytes	CD39 [Discovery of anti-CD39 antibodies], TTX-030 [Development of TTX-030]	Translational
EXP-18-FE3894	Bill Kramer's PK analysis of Charles River Studies No. 20122951 and 20135491	TTX-030 [Development of TTX-030]	Translational
EXP-18-GU1503	CD39 receptor occupancy - Fresh vs Frozen	TTX-030 [Development of TTX-030]	Translational
EXP-18-GU1506	CD39 Receptor Occupancy - Vacutainer CPT tubes	TTX-030 [Development of TTX-030]	Translational
EXP-17-FE3848	CD39 Receptor Occupancy on Cyno blood - Assay Dev - #1	TTX-030 [Development of TTX-030]	Translational
EXP-17-FE3849	CD39 RO in Cyno Blood - Assay Dev #2	TTX-030 [Development of TTX-030]	Translational
EXP-17-FE3850	CD39 RO in Cyno Blood - Assay Dev #3	TTX-030 [Development of TTX-030]	Translational
EXP-17-FE3851	CD39 RO in Cyno Blood - Assay Dev #4	TTX-030 [Development of TTX-030]	Translational
EXP-17-FE3852	CD39 RO in Cyno Blood - Assay Dev #5	TTX-030 [Development of TTX-030]	Translational
EXP-18-FE3893	Charles River Laboratories Final Summary Report for Study No. 20122951	TTX-030 [Development of TTX-030]	Translational
EXP-18-FE3892	Charles River Laboratories Final Summary Report for Study No. 20135491	TTX-030 [Development of TTX-030]	Translational
EXP-18-FE3854	CRL Study 20135491 - Cyno PK - Measuring TTX-030 in cyno serum by ELISA	TTX-030 [Development of TTX-030]	Translational
EXP-17-FE3853	Cyno PK RO - CRL 20135491	TTX-030 [Development of TTX-030]	Translational
EXP-18-FE3887	Further analysis of EXP-18-GH4315 - Cytokine Response in unstimulated PBMCs	TTX-030 [Development of TTX-030]	Translational
EXP-18-FE3889	Isolation of cynomolgus monocytes from whole blood	CD39 [Discovery of anti-CD39 antibodies], TTX-030 [Development of TTX-030]	Translational
EXP-19-GU1513	Preparing Dylight 650 antibody conjugates with TTX-030 and HlgG4 Isotype control	TTX-030 [Development of TTX-030]	Translational
EXP-18-FE3859	Re-analysis of Cyno serum PK samples - 10, 30, and 100 mpk	TTX-030 [Development of TTX-030]	Translational
EXP-18-FE3893	Re-analysis of Cyno serum PK samples - Corrections to EXP-18-FE3859	TTX-030 [Development of TTX-030]	Translational
EXP-18-FE3862	Re-Analysis of Monocyte Receptor Occupancy from CRL Study No. 20122955	TTX-030 [Development of TTX-030]	Translational
EXP-19-GU1512	Testing Dylight 650-labeled conjugates	TTX-030 [Development of TTX-030]	Translational
EXP-18-EV7660	TTX-030 Whole Blood Binding Human and Cyno 01/24/18	CD39 [Discovery of anti-CD39 antibodies]	Translational
EXP-19-FO6072	D43019_preparation of MEL-28 cell sups for exosome characterization at KCAS	CD39 [Discovery of anti-CD39 antibodies]	Translational
EXP-18-FO6069	D91218_Exosome isolation and CD63 enrichment from MEL-28 sups_5ml prep	CD39 [Discovery of anti-CD39 antibodies]	Translational
EXP-18-FL4901	TL staining for CD39 and CD73 in CRC patient samples (via SRA with Ana Anderson)	CD39 [Discovery of anti-CD39 antibodies]	Translational
EXP-18-FL2937	Anti-TTX-030 idotype mAb discovery with Abcam (UTZ-1)	CD39 [Discovery of anti-CD39 antibodies]	Translational
EXP-18-FL2934	Intact Mass Spec Analysis for 4 rabbit anti-TTX-030 idotype antibodies	CD39 [Discovery of anti-CD39 antibodies]	Translational
EXP-18-FL2938	Production of 4 rabbit anti-TTX-030 mAbs at Atum	CD39 [Discovery of anti-CD39 antibodies]	Translational
EXP-18-FQ2277	180130 abcam rabbit monoclonal anti-idotype (TTX-030) S/N screening	CD39 [Discovery of anti-CD39 antibodies], TTX-030 [Development of TTX-030]	Translational
EXP-18-FQ2279	180206-08 Anti-TTX030 idotype monoclonal S/N binning and blocking assays	CD39 [Discovery of anti-CD39 antibodies], TTX-030 [Development of TTX-030]	Translational
EXP-18-FQ2261	180720 ELISA anti-TTX-030 PK/TK assay dev	TTX-030 [Development of TTX-030]	Translational
EXP-18-FQ2262	180724 ELISA anti-TTX-030 idotype 78 & 116 full EC50, assay dev continued	TTX-030 [Development of TTX-030]	Translational
EXP-18-FQ2263	180725 Further Octet characterization of anti-TTX030 idotype binding to TTX030 +/- CD39	TTX-030 [Development of TTX-030]	Translational
EXP-18-FQ2276	180925 Early assay dev work to screen anti-idotype S/N	CD39 [Discovery of anti-CD39 antibodies]	Translational
EXP-20-HG6645	191030-191101 Binding kinetics of rabbit anti-TTX-030 idotypic mAbs for acidic vs main peak TTX-030	TTX-030 [Development of TTX-030], CD39 [Discovery of anti-CD39 antibodies]	Translational
EXP-18-EY3786	01242018 TTX-030 binding on Human and Cyno monocytes (nM)	CD39 [Discovery of anti-CD39 antibodies]	Translational
EXP-18-EY3787	02122017 Fresh B-cell binding geometric MPI (nM)	CD39 [Discovery of anti-CD39 antibodies]	Translational
EXP-19-HG9012	20181128 Nanostring	CD39 [Discovery of anti-CD39 antibodies]	Translational
EXP-19-HG9011	20190204 Nanostring	CD39 [Discovery of anti-CD39 antibodies]	Translational
EXP-18-GH7695	Purification of TTX-030 Rabbit Anti-Id (group 3 and combined SEC)	TTX-030 [Development of TTX-030]	Translational

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