



Use of CyTOF® Technology in Clinical Research Trials (131)

Fluidigm Products Are For Research Use Only. Not for use in diagnostic procedures.

National Clinical Trial (NCT) Number	Clinical Research Trial Name	Country	Sponsor	Application	Platform	CyTOF: Study Objective or Correlative Study	Associated Abstract or Publication	Investigator	Collaborator	Recruitment Status	Start Date	Completion Date	Enrollment	Phase	Study Posted Date
NCT00574288	<a href="#">Daratumumab (HuMax®-CD38) Safety Study in Multiple Myeloma</a>	US, Denmark, Netherlands, Sweden	Janssen Research & Development	Immuno-oncology	Mass cytometry	Correlative	<a href="#">Publication</a>	N/A	none	Completed	2008	2017	104	Phase 2	December 17, 2007
NCT00903968	<a href="#">Combination Plerixafor (AMD3100) and Bortezomib in Relapsed or Relapsed/Refractory Multiple Myeloma</a>	US	Dana-Farber Cancer Institute	Oncology	Mass cytometry	Correlative	<a href="#">Publication</a>	Irene Ghobrial	Brigham and Women's Hospital, Genzyme	Completed	2009	2016	58	Phase 1/2	May 19, 2009
NCT00943943	<a href="#">Granulocyte-colony Stimulating Factor (G-CSF) and Plerixafor Plus Sorafenib for Acute Myelogenous Leukemia (AML) With FLT3 Mutations</a>	US	MD Anderson Cancer Center	Immuno-oncology	Mass cytometry	Correlative	<a href="#">Publication</a>	Michael Andreeff	Bayer, Genzyme, Amgen, National Cancer Institute, Georgia Institute of Technology	Completed	2010	2017	33	Phase 1	July 22, 2009
NCT01296451	<a href="#">Study of a New MVA Vaccine for Hepatitis C Virus</a>	UK	ReiThera Sri	Vaccine, infection	Mass cytometry	Correlative	<a href="#">Publication</a>	Paul Klenerman, David Gorard, Eleanor Barnes	University of Oxford, University Hospital Birmingham	Completed	2010	2016	55	Phase 1	February 15, 2011
NCT01449279	<a href="#">Pilot Ipilimumab in Stage IV Melanoma Receiving Palliative Radiation Therapy</a>	US	Stanford University	Immuno-oncology	Mass cytometry	Correlative	<a href="#">Publication</a>	Susan Knox	none	Completed	2011	2016	22	Phase 2	October 10, 2011
NCT01498978	<a href="#">Ipilimumab in Combination With Androgen Suppression Therapy in Treating Patients With Metastatic Hormone-Resistant Prostate Cancer</a>	US	OHSU Knight Cancer Institute	Immuno-oncology	Mass cytometry	Correlative	<a href="#">Publication</a>	Julie Graff	National Cancer Institute	Completed	2012	2020	10	Phase 2	December 26, 2011
NCT01578798	<a href="#">Detection of Immune Changes as a Result of Surgical Trauma in Human Subject</a>	US	Stanford University	Surgery	Mass cytometry	Primary outcome measure	<a href="#">Publication</a>	Martin Angst	none	Completed	2012	2013	50	N/A (observational)	April 17, 2012
NCT01697527	<a href="#">Gene and Vaccine Therapy in Treating Patients With Advanced Malignancies</a>	US	Jonsson Comprehensive Cancer Center	Oncology	Mass cytometry	Correlative	<a href="#">Publication</a>	Antonio Ribas	University of California Los Angeles	Active, not recruiting	2012	2022	6	Phase 2	October 2, 2012
NCT01881867	<a href="#">CYT107 After Vaccine Treatment (Provenge®) in Patients With Metastatic Castration-Resistant Prostate Cancer</a>	US	Fred Hutchinson Cancer Research Center	Immuno-oncology, vaccine	Mass cytometry	Correlative	<a href="#">Abstract</a>	Lawrence Fong	Cancer Immunotherapy Trials Network, National Cancer Institute	Completed	2013	2018	54	Phase 2	June 20, 2013
NCT01882569	<a href="#">Optimization of Time-of-Flight Mass Cytometry (CyTOF) Analysis for Evaluation of Immune Changes Following Surgery</a>	US	Stanford University Hospital	Surgery	Mass cytometry	Primary outcome measure	N/A	Martin Angst	none	Completed	2012	2014	5	N/A (observational)	June 20, 2013
NCT01882582	<a href="#">Evaluation of Immune Signaling Networks in Healthy Human Volunteers</a>	US	Stanford University	Immunology	Mass cytometry	Primary outcome measure	N/A	Martin Angst	none	Completed	2012	2013	25	N/A (observational)	June 20, 2013
NCT01885728	<a href="#">Immune-modulation Effects of an Arginine Rich Nutritional Supplement in Surgical Patients</a>	US	Stanford University Hospital	Surgery	Mass cytometry	Primary outcome measure	N/A	Martin Angst	none	Completed	2013	2016	22	N/A	June 25, 2013
NCT01903993	<a href="#">A Randomized Phase 2 Study of Atezolizumab (an Engineered Anti-PDL1 Antibody) Compared With Docetaxel in Participants With Locally Advanced or Metastatic Non-Small Cell Lung Cancer Who Have Failed Platinum Therapy - "POPLAR"</a>	US, UK, France, Germany, Korea, Sweden	Hoffmann-La Roche	Immuno-oncology	Mass cytometry	Correlative	<a href="#">Publication</a>	N/A	65 study locations	Completed	2013	2018	287	Phase 2	July 19, 2013
NCT01946477	<a href="#">Pomalidomide in Combination With Low-dose Dexamethasone or Pomalidomide in Combination With Low-dose Dexamethasone and Daratumumab in Subjects With Relapsed or Refractory Multiple Myeloma Following Lenalidomide-based Therapy in the First or Second Line Setting (POM MM D14)</a>	US	Celgene	Immuno-oncology	Mass cytometry	Exploratory objective	<a href="#">Publication</a>	Amit Agarwal	49 study locations	Recruiting	2014	2025	156	Phase 2	September 13, 2013
NCT01985126	<a href="#">An Efficacy and Safety Study of Daratumumab in Patients With Multiple Myeloma Who Have Received at Least 3 Prior Lines of Therapy (Including a Proteasome Inhibitor [PI] and Immunomodulatory Drug [IMiD]) or Are Double Refractory to a PI and an IMiD</a>	US, Canada, Spain	Janssen Research & Development	Immuno-oncology	Mass cytometry	Correlative	<a href="#">Publication</a>	N/A	23 study locations	Completed	2013	2017	124	Phase 2	November 5, 2013
NCT02076009	<a href="#">A Study Comparing Daratumumab, Lenalidomide, and Dexamethasone With Lenalidomide and Dexamethasone in Relapsed or Refractory Multiple Myeloma</a>	US	Janssen Research & Development	Immuno-oncology	Mass cytometry	Correlative	<a href="#">Publication</a>	Janssen Research & Development Clinical Trial	none	Active, not recruiting (results available)	2014	2021	569	Phase 3	March 3, 2014
NCT02119411	<a href="#">Vaccine Therapy in Treating Patients With Stage IIIC-IV Ovarian Epithelial, Fallopian Tube, or Primary Peritoneal Cavity Cancer Following Surgery and Chemotherapy</a>	US	Mayo Clinic	Immuno-oncology, vaccine	Mass cytometry	Other outcome measure	<a href="#">Publication</a>	Matthew Block	National Cancer Institute	Active, not recruiting	2014	2021	19	Early Phase 1	April 11, 2014
NCT02192008	<a href="#">Investigating Enteric Fever—Salmonella Typhi and Paratyphi Challenge Study</a>	UK	University of Oxford, Oxford Vaccine Group	Vaccine, infection	Mass cytometry	Secondary outcome measure	N/A	Andrew Pollard	University of Liverpool, Brigham and Women's Hospital	Active, not recruiting	2014	2021	125	N/A	July 16, 2014
NCT02397720	<a href="#">Nivolumab and Azacitidine With or Without Ipilimumab in Treating Patients With Refractory/Relapsed or Newly Diagnosed Acute Myeloid Leukemia</a>	US	MD Anderson Cancer Center	Immuno-oncology	Mass cytometry	Objective	<a href="#">Abstract</a>	Naval Daver	National Cancer Institute	Recruiting	2015	2022	182	Phase 2	March 25, 2015
NCT02399371	<a href="#">Pembrolizumab in Treating Patients With Malignant Mesothelioma</a>	US	University of Chicago	Immuno-oncology	Mass cytometry	Other outcome measure	N/A	Hedy Kindler	National Cancer Institute	Active, not recruiting	2015	2023	65	Phase 2	March 26, 2015
NCT02476084	<a href="#">Biomarker Signature and Musculoskeletal Ultrasound Profile in Rheumatoid Arthritis Patients (BMUS)</a>	UK	University of Oxford	Autoimmunity	Mass cytometry	Secondary outcome measure	N/A	Peter Taylor	UCB Pharma	Active, not recruiting	2014	2021	100	N/A (observational)	June 19, 2015

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NCT02481453	<a href="#">Rapamycin vs Placebo for the Treatment of Inclusion Body Myositis (RAPAMI)</a>	France	Institut National de la Santé Et de la Recherche Médicale	Autoimmunity	Mass cytometry	Correlative	<a href="#">Publication</a>	N/A	Hôpital Pitié Salpêtrière	Completed	2015	2018	44	Phase 2	June 15, 2015
NCT02519322	<a href="#">Neoadjuvant and Adjuvant Checkpoint Blockade</a>	US	MD Anderson Cancer Center	Immuno-oncology	Mass cytometry	Correlative	<a href="#">Publication</a>	Rodabe Amaria	National Cancer Institute	<a href="#">Recruiting (results available)</a>	2016	2020	53	Phase 2	August 10, 2015
NCT02523469	<a href="#">ALT-803 Plus Nivolumab in Patients With Pretreated, Advanced or Metastatic Non-Small Cell Lung Cancer</a>	US	Medical University of South Carolina	Immuno-oncology	Mass cytometry	Correlative	<a href="#">Abstract (P352)</a>	Carsten Krieg	Altor BioScience	Active, not recruiting	2016	2022	58	Phase 1/2	August 14, 2015
NCT02542592	<a href="#">Effect of Methylprednisolone on Immune Signaling in Hip-arthroplasty Patients</a>	Denmark	Rigshospitalet, Denmark	Surgery	Mass cytometry	Correlative study	<a href="#">Publication</a>	Viktoria Oline Lindberg-Larsen	Bispebjerg Hospital	Completed	2015	2017	64	Phase 2/3	September 7, 2015
NCT02655458	<a href="#">Elotuzumab in Autologous Stem Cell Transplantation (ASCT) and Lenalidomide Maintenance for Multiple Myeloma</a>	US	Icahn School of Medicine at Mount Sinai	Immuno-oncology	Mass cytometry	Secondary outcome measure	N/A	Hearn Jay Cho	Bristol-Myers Squibb	Completed	2016	2017	15	Phase 1	January 14, 2016
NCT02669173	<a href="#">Capecitabine + Bevacizumab in Patients With Recurrent Glioblastoma</a>	US	Case Comprehensive Cancer Center	Immuno-oncology	Mass cytometry	Correlative	<a href="#">Publication</a>	David Peereboom	Cleveland Clinic Taussig Cancer Institute	<a href="#">Recruiting (results available)</a>	2016	2021	12	Phase 1	February 1, 2016
NCT02718573	<a href="#">Impact of Interferon-free Treatment for Hepatitis C Virus (HCV) on Blood Cells and Factors in Blood</a>	US	Icahn School of Medicine at Mount Sinai	Infection	Mass cytometry	Primary outcome measure	N/A	Andrea Branch	none	Completed	2015	2017	74	N/A (observational)	March 24, 2016
NCT02773030	<a href="#">A Study to Determine Dose and Tolerability of CC-220 Monotherapy, in Combination With Dexamethasone, and in Combination With Dexamethasone and Daratumumab or Bortezomib in Subjects With Relapsed and Refractory Multiple Myeloma (MM)</a>	US, UK, France, Germany, Italy, Japan, Spain, Netherlands	Celgene	Immuno-oncology	Mass cytometry	Correlative	<a href="#">Abstract</a>	Amine Bensmaïne	60 study locations	Recruiting	2016	2027	464	Phase 1/2	May 16, 2016
NCT02782546	<a href="#">Cytokine Induced Memory-like NK Cell Adoptive Therapy After Haploidentical Donor Hematopoietic Cell Transplantation</a>	US	Washington University School of Medicine in St. Louis	Immuno-oncology	Mass cytometry	Correlative	<a href="#">Abstract</a>	Amanda Cashen	National Institutes of Health, National Cancer Institute, The V Foundation for Cancer Research	Recruiting	2017	2022	60	Phase 2	May 25, 2016
NCT02860039	<a href="#">High Dose Flu Vaccine in Treating Children Who Have Undergone Donor Stem Cell Transplant</a>	US	Vanderbilt-Ingram Cancer Center	Vaccine, infection	Mass cytometry	Secondary outcome measure	N/A	Natasha Halasa	National Cancer Institute	Active, not recruiting	2016	2022	200	Phase 2	August 9, 2016
NCT02869633	<a href="#">Ibrutinib in Treating Patients With Refractory or Relapsed Lymphoma After Donor Stem Cell Transplant</a>	US	Vanderbilt-Ingram Cancer Center	Immuno-oncology	Mass cytometry	Secondary outcome measure	N/A	Madan Jagasia	National Cancer Institute	Active, not recruiting	2016	2023	23	Phase 2	August 17, 2016
NCT02889016	<a href="#">Neurobiologic, Immunologic, and Rheumatologic Markers in Youth With PANS</a>	US	Stanford University	Immune disorders	Mass cytometry	Exploratory objective	N/A	Jennifer Frankovich	none	Recruiting	2013	2028	500	N/A (observational)	September 5, 2016
NCT02926833	<a href="#">Safety and Efficacy of KTE-C19 in Combination With Atezolizumab in Adults With Refractory Diffuse Large B-Cell Lymphoma (DLBCL) (ZUMA-6)</a>	US	Kite, a Gilead Company	Immuno-oncology, CAR T cell therapy	Mass cytometry	Correlative	<a href="#">Abstract (P210)</a>	Kite Study Director	Genentech	Active, not recruiting	2016	2033	37	Phase 1/2	October 6, 2016
NCT02953561	<a href="#">Avelumab and Azacitidine in Treating Patients With Refractory or Relapsed Acute Myeloid Leukemia</a>	US	MD Anderson Cancer Center	Immuno-oncology	Mass cytometry	Correlative	<a href="#">Abstract</a>	Naval Daver	National Cancer Institute	<a href="#">Terminated (results available)</a>	2017	2019	19	Phase 1/2	November 2, 2016
NCT02960230	<a href="#">H3.3K27M Peptide Vaccine With Nivolumab for Children With Newly Diagnosed DIPG and Other Gliomas</a>	US	Sabine Mueller, University of California, San Francisco	Immuno-oncology	Mass Cytometry	Other outcome measure	<a href="#">Publication</a>	Sabine Mueller	The V Foundation for Cancer Research, Pacific Pediatric Neuro-Oncology Consortium, Bristol-Myers Squibb	Recruiting	2016	2023	49	Phase 1/2	November 9, 2016
NCT02981628	<a href="#">Inotuzumab Gogamycin in Treating Younger Patients With B-Lymphoblastic Lymphoma or Relapsed or Refractory CD22-Positive B Acute Lymphoblastic Leukemia</a>	US	Children's Oncology Group	Immuno-oncology	Mass cytometry	Other outcome measure	N/A	Maureen M. O'Brien	National Cancer Institute	Active, not recruiting	2017	2022	53	Phase 2	December 5, 2016
NCT03038672	<a href="#">Nivolumab With or Without Varilumab in Treating Patients With Relapsed or Refractory Aggressive B-cell Lymphoma</a>	US	National Cancer Institute	Immuno-oncology	Mass cytometry	Exploratory objective	<a href="#">Abstract</a>	Stephen Ansell	Mayo Clinic Cancer Center	Recruiting	2017	2020	106	Phase 2	February 1, 2017
NCT03067961	<a href="#">Investigating Typhoid Fever Pathogenesis (TYGER)</a>	UK	University of Oxford, Oxford Vaccine Group	Vaccine, infection	Mass cytometry	Secondary outcome measure	N/A	Andrew Pollard	Bill and Melinda Gates Foundation, Yale University	Active, not recruiting	2017	2021	40	N/A	March 1, 2017
NCT03068819	<a href="#">Cytokine Induced Memory-like NK Cell Adoptive Therapy for Relapsed AML After Allogeneic Hematopoietic Cell Transplant</a>	US	Washington University School of Medicine in St. Louis	Immuno-oncology	Mass cytometry	Correlative	<a href="#">Abstract</a>	Amanda Cashen	none	Recruiting	2017	2024	24	Phase 1	March 3, 2017
NCT03088904	<a href="#">Genetic and Environmental Factors in the Response to Influenza Vaccination (SLVP028)</a>	US	Stanford University	Vaccine, infection	Mass cytometry	Secondary outcome measure	N/A	Cornelia Dekker, Mark M. Davis, William Robinson, Catherine Blish, Philip M. Grant	National Institute of Allergy and Infectious Diseases	Completed	2014	2018	109	Phase 1	March 23, 2017
NCT03140943	<a href="#">Carfilzomib Thalidomide and Dexamethasone in Patients With Relapsed and/or Refractory Multiple Myeloma</a>	Singapore	National University Hospital, Singapore	Oncology	Mass cytometry	Correlative	<a href="#">Abstract</a>	Wee Joo Chng	Celgene	Recruiting	2017	2022	100	Phase 2	May 4, 2017
NCT03177239	<a href="#">Phase II Sequential Treatment Trial of Single Agent Nivolumab, Then Combination Ipilimumab + Nivolumab in Metastatic or Unresectable Non-Clear Cell Renal Cell Carcinoma (ANZUP1602) (UNISON)</a>	Australia	Australian and New Zealand Urogenital and Prostate Cancer Trials Group	Immuno-oncology	Mass cytometry	Other outcome measure	N/A	Craig Gedy, Ian Davis	Bristol-Myers Squibb	Active, not recruiting	2017	2022	85	Phase 2	June 6, 2017
NCT03207854	<a href="#">Collection of Immunology Specimens From Patients With Cancer or Blood Disorders, and Healthy Volunteers</a>	US	University of Southern California Norris Comprehensive Cancer Center	Immuno-oncology	Mass cytometry	Primary outcome measure	N/A	Akil Merchant	National Cancer Institute	Recruiting	2017	2023	500	N/A (observational)	July 5, 2017

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NCT03212274	<a href="#">Olanarib in Treating Patients With Advanced Glioma, Cholangiocarcinoma, or Solid Tumors With IDH1 or IDH2 Mutations</a>	US	National Cancer Institute	Oncology	Imaging Mass Cytometry™	Exploratory objective	N/A	Patricia M. LoRusso	Stanford Cancer Institute, UC Davis Cross Cultural Center, Yale University, UK Markey Cancer Center, Sidney Kimmel Cancer Center, Rutgers Cancer Institute	Recruiting	2018	2021	145	Phase 2	July 11, 2017
NCT03214562	<a href="#">Venetoclax With Combination Chemotherapy in Treating Patients With Newly Diagnosed or Relapsed or Refractory Acute Myeloid Leukemia</a>	US	MD Anderson Cancer Center	Immuno-oncology	Mass cytometry	Correlative	<a href="#">Abstract</a>	Courtney DiNardo	National Cancer Institute	Recruiting	2017	2023	56	Phase 1/2	July 11, 2017
NCT03239145	<a href="#">Pembrolizumab (Anti-PD-1) and AMG386 (Angiopoietin-2 (Ang-2)) in Patients With Advanced Solid Tumor</a>	US	Dana-Farber Cancer Institute	Immuno-oncology	Mass cytometry	Correlative study	<a href="#">Abstract</a>	Osama E. Rahma	Merck Sharp & Dohme Corp., Amgen	Recruiting	2017	2024	60	Phase 1	August 3, 2017
NCT03299946	<a href="#">Feasibility and Efficacy of Neoadjuvant Cabozantinib Plus Nivolumab (CaboNivo) Followed by Definitive Resection for Patients With Locally Advanced Hepatocellular Carcinoma (HCC)</a>	US	Sidney Kimmel Comprehensive Cancer Center at Johns Hopkins	Immuno-oncology	Mass cytometry and Imaging Mass Cytometry	Correlative study	<a href="#">Case report</a>	Daniel Laheru	Exelixis, Bristol-Myers Squibb	Active, not recruiting	2018	2022	15	Phase 1	March 4, 2017
NCT03335605	<a href="#">Improving the Diagnosis of Common Variable Immune Deficiency</a>	US	University of California Los Angeles	Immune disorders	Mass cytometry	Primary outcome measure	N/A	Manish J. Butte	Jeffrey Modell Foundation	Recruiting	2019	2020	150	N/A (observational)	November 8, 2017
NCT03358719	<a href="#">DEC-205/NY-ESO-1 Fusion Protein CDX-1401, Poly ICLC, Decitabine, and Nivolumab in Treating Patients With Myelodysplastic Syndrome or Acute Myeloid Leukemia</a>	US	Roswell Park Cancer Institute	Immuno-oncology, vaccine	Mass cytometry	Secondary outcome measure	N/A	Elizabeth Griffiths	National Cancer Institute	Active, not recruiting	2018	2021	8	Phase 1	December 2, 2017
NCT03409796	<a href="#">Assessment of Immune Activation and Tolerance in Celiac Disease During Gluten Challenge</a>	US	Takeda	Autoimmunity	Mass cytometry	Correlative	<a href="#">Publication</a>	Glennnda Smithson	Massachusetts General Hospital, Beth Israel Deaconess Medical Center	Completed	2018	2019	16	N/A	January 24, 2018
NCT03430479	<a href="#">Anti-PD-1 Antibody With Radiation Therapy in Patients With HER2-negative Metastatic Breast Cancer</a>	Japan	Kyoto Breast Cancer Research Network	Immuno-oncology	Mass cytometry	Correlative	<a href="#">Abstract</a>	Masahiro Takada	none	Active, not recruiting	2017	2020	32	Phase 1/2	February 13, 2018
NCT03453801	<a href="#">The Role of CD4+ Memory Phenotype, Memory, and Effector T Cells in Vaccination and Infection (SLVP030)</a>	US	Stanford University	Vaccine, infection	Mass cytometry	Secondary outcome measure	N/A	Cornelia Dekker, Mark M. Davis, Philip M. Grant	National Institute of Allergy and Infectious Diseases	Completed	2014	2019	80	Phase 1	March 5, 2018
NCT03454282	<a href="#">Impact of Dietary Intervention on Tumor Immunity: the DietsT Trial</a>	Italy	Fondazione IRCCS Istituto Nazionale dei Tumori	Immuno-oncology	Mass cytometry	Secondary outcome measure	N/A	Filippo de Braud	National Health Research Institutes (Taiwan), University of Milan, Centro de Investigación en Nanomateriales y Nanotecnología, INSERM, Martin-Luther-Universität Halle-Wittenberg	Recruiting	2018	2020	100	N/A	March 5, 2018
NCT03495830	<a href="#">Stratification of Patient With Carotid Disease (TAXINOMISIS)</a>	Serbia	University of Belgrade	Cardiac disease	Mass cytometry	Other outcome measure	<a href="#">Publication</a>	Dimitris Fotiadis	University of Munich, Utrecht University, University of Barcelona, University of Athens, University of Genova	Recruiting	2018	2022	270	N/A (observational)	April 1, 2018
NCT03500614	<a href="#">The Use of Air Cleaners to Mitigate Cardiopulmonary Health Impact of Indoor Exposure to Particles and Phthalates</a>	China	Peking University	Immunology	Mass cytometry	Primary outcome measure	N/A	Jing Huang, Shaowei Wu	none	Completed	2017	2018	70	N/A	April 18, 2018
NCT03502044	<a href="#">New MRT Imaging Biomarkers and Treatment With Kinetic Oscillatory Stimulation (KOS) in Nasal Cavity for Myalgic Encephalomyelitis/Chronic Fatigue Syndrome (ME/CFS)</a>	Sweden	Karolinska University Hospital	Immune disorders	Mass cytometry	Secondary outcome measure	N/A	Tie-Qiang Li	Neurological Rehabilitation Clinic in Stora Sköndal	Recruiting	2018	2020	200	N/A	April 18, 2018
NCT03513614	<a href="#">Tailored Axillary Surgery with or without Axillary Lymph Node Dissection Followed by Radiotherapy in Patients with Clinically Node-Positive Breast Cancer (TAXIS)</a>	Switzerland, Austria	Swiss Group for Clinical Cancer Research	Oncology	Imaging Mass Cytometry	Correlative	<a href="#">Publication</a>	Walter Weber	International Breast Cancer Study Group, Austrian Breast Cancer Study Group	Recruiting	2018	2043	1500	Phase 3	May 1, 2018
NCT03515863	<a href="#">Natural History and Risk Factors of TAO</a>	China	Sun Yat-sen University	Autoimmunity	Mass cytometry	Secondary outcome measure	N/A	Yingfeng Zheng	First People's Hospital of Zhaoqing	Recruiting	2018	2022	400	N/A (observational)	May 4, 2018
NCT03532217	<a href="#">Neoantigen DNA Vaccine in Combination With Nivolumab/Ipilimumab and PROSTVAC in Metastatic Hormone-Sensitive Prostate Cancer</a>	US	Washington University School of Medicine in St. Louis	Immuno-oncology	Mass cytometry	Primary outcome measure	N/A	Russell Pachynski	Bristol-Myers Squibb	Recruiting	2018	2023	20	Phase 1	May 22, 2018
NCT03548207	<a href="#">A Study of JNJ-68284528, a Chimeric Antigen Receptor T Cell (CAR-T) Therapy Directed Against B-Cell Maturation Antigen (BCMA) in Participants With Relapsed or Refractory Multiple Myeloma (CARTITUDE-1)</a>	US, France, Belgium, Netherlands, Japan	Janssen Research & Development	Immuno-oncology, CAR T cell therapy	Mass cytometry	Secondary outcome measure	N/A	Janssen Research & Development	21 study locations	Recruiting	2018	2022	118	Phase 1/2	June 7, 2018
NCT03567707	<a href="#">Vaginal Microbiome Exposure and Immune Responses in C-section Infants</a>	US	National Institute of Allergy and Infectious Diseases	Allergy	Mass cytometry	Correlative Study	N/A	Hugh Sampson, Jose Clemente	Immune Tolerance Network	Recruiting	2018	2022	120	Early Phase 1	June 26, 2018
NCT03615690	<a href="#">The Influence of a Fasting Mimicking Diet on Ulcerative Colitis</a>	US	Stanford University	Autoimmunity	Mass cytometry	Other outcome measure	N/A	Sidhartha R. Sinha	none	Not yet recruiting	2020	2022	75	N/A	August 6, 2018

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NCT03660735	<a href="#">The PIP Study - Pre-IVF Immune Profiling Study (PIP)</a>	UK	University of Oxford	Immunology, fertility	Mass cytometry	Other outcome measure	N/A	Ingrid Granne	Finox Biotech	Recruiting	2018	2021	250	N/A (observational)	September 7, 2018
NCT03686202	<a href="#">Feasibility Study of Microbial Ecosystem Therapeutics (MET-4) to Evaluate Effects of Fecal Microbiome in Patients on Immunotherapy (MET4-ID)</a>	Canada	University Health Network, Toronto	Immuno-oncology, gut microbiota	Mass cytometry	Other outcome measure	N/A	Lillian Siu	NuBiyota	Recruiting	2018	2023	65	Early Phase 1	September 26, 2018
NCT03705585	<a href="#">CVD 38000- Study of Responses to Vaccination With Typhoid and/or Cholera</a>	US	University of Maryland	Vaccine, infection	Mass cytometry	Primary outcome measure	N/A	Bruce Greenwald	none	Recruiting	2018	2023	240	Phase 4	October 15, 2018
NCT03708224	<a href="#">Phase II Study of Perioperative Immunotherapy in Patients With Advanced Non-Virally Associated Squamous Cell Carcinoma</a>	US	University of California, San Francisco	Immuno-oncology	Mass cytometry	Secondary outcome measure	N/A	Alain Algazi	Genentech	Active, not recruiting	2019	2025	8	Phase 2	October 17, 2018
NCT03712826	<a href="#">Identification by Cytometry by Mass of Predictive Immunological Profiles of Answer to Treatment by Biotherapies for Patients With Crohn's Disease (PICTURE)</a>	France	Hospices Civils de Lyon	Autoimmunity	Mass cytometry	Primary outcome measure	N/A	Gilles Boschetti	Centre Hospitalier Lyon Sud	Recruiting	2019	2020	60	N/A	October 19, 2019
NCT03733990	<a href="#">A Study to Evaluate Safety, Tolerability and Preliminary Efficacy of FP-1305 in Cancer Patients (MATINS)</a>	Finland	Faron Pharmaceuticals	Immuno-oncology	Mass cytometry	Correlative	<a href="#">Abstract</a>	Petri Bono	University of Turku, Royal Marsden NHS Foundation Trust, Erasmus University Medical Center	Recruiting	2018	2024	650	Phase 1/2	November 7, 2018
NCT03734198	<a href="#">Evaluation of the Safety and Efficacy of the Association of Ibrutinib and Daratumumab in Relapsed/Refractory Chronic Lymphocytic Leukemia With p53 Dysfunction (IDAS3)</a>	France	French Innovative Leukemia Organisation	Immuno-oncology	Mass cytometry	Other outcome measure	N/A	Alain Delmer	Janssen	Recruiting	2018	2027	44	Phase 2	November 7, 2018
NCT03738475	<a href="#">Study of the Safety, Pharmacodynamics, Efficacy, and PK of TIMP-GLIA in Subjects With Celiac Disease</a>	US	Takeda	Autoimmunity	Mass cytometry	Secondary outcome measure	N/A	Medical Director Clinical Science, Takeda	COUR Pharmaceuticals Development Company, Inc., Mayo Clinic, Jacksonville Center for Clinical Research	Completed (results available)	2018	2019	34	Phase 2	November 13, 2018
NCT03758950	<a href="#">Inhaled Mometasone to Promote Reduction in Vasoproliferative Events 2 (IMPROVE2)</a>	US	Icahn School of Medicine at Mount Sinai	Blood disorder	Mass cytometry	Secondary outcome measure	N/A	Jeffrey Glassberg	National Heart, Lung, and Blood Institute	Recruiting	2018	2023	80	Phase 2	November 29, 2018
NCT03799328	<a href="#">Low Dose Multi-OIT for Food Allergy (LoMo)</a>	Canada	Hospital for Sick Children	Allergy	Mass cytometry	Other outcome measure	N/A	Thomas Eiwegger	none	Recruiting	2019	2025	18	Phase 2	January 10, 2019
NCT03810352	<a href="#">Association of Platelet Parameters With Bleeding Severity in Children With ITP (ITP-APPS)</a>	US	Boston Children's Hospital	Blood disorder	Mass cytometry	Primary outcome measure	<a href="#">Article</a>	Andrew Frelinger	Sysmex America, Inc., Columbia University Medical Center, Duke University Medical Center, Children's Hospital Colorado, Children's Hospital of Philadelphia, Saylor College of Medicine	Recruiting	2019	2021	150	N/A (observational)	January 18, 2019
NCT03885713	<a href="#">Identification of Predictive Biomarkers for Response to Biologic Therapies in Inflammatory Bowel Disease (BioBD)</a>	Spain	Fundación de Investigación Biomédica – Hospital Universitario de La Princesa	Autoimmunity	Mass cytometry	Primary outcome measure	N/A	Ana Garre	18 hospitals	Recruiting	2019	2022	180	Phase 4	March 22, 2019
NCT03915379	<a href="#">A Study of JNJ-67571244 in Participants With Relapsed or Refractory Acute Myeloid Leukemia (AML) or Myelodysplastic Syndrome (MDS)</a>	US	Janssen Research & Development	Immuno-oncology	Mass cytometry	Secondary outcome measure	N/A	Janssen Research & Development	none	Recruiting	2019	2022	90	Phase 1	February 28, 2019
NCT03955978	<a href="#">TSR-042 in Addition to Standard of Care Definitive Radiation for Inoperable Endometrial Cancer</a>	US	Washington University School of Medicine in St. Louis	Immuno-oncology	Mass cytometry	Exploratory objective	N/A	Stephanie Markovina	Tesaro	Recruiting	2019	2022	12	Phase 1	May 20, 2019
NCT03970304	<a href="#">CVD 37000- Immunity and Microbiome Studies at Intestinal and Systemic Sites in Ty21a Vaccinated Adults</a>	US	University of Maryland	Vaccine, infection	Mass cytometry	Primary outcome measure	N/A	Bruce Greenwald	none	Recruiting	2013	2024	260	Phase 4	May 31, 2019
NCT03971669	<a href="#">Blood Donor CVD 5000</a>	US	University of Maryland	Vaccine, infection	Mass cytometry	Primary outcome measure	N/A	Marcelo Szein	none	Recruiting	2004	2024	150	Phase 4	June 3, 2019
NCT03978702	<a href="#">Evaluation of the Impact of Pancreatectomy on Systemic Immunity (IMMUNOPANC)</a>	Italy	Institut Paoli-Calmettes	Surgery	Mass cytometry	Primary outcome measure	N/A	Olivier Turrini	none	Not yet recruiting	2020	2022	40	N/A	June 7, 2019
NCT03979508	<a href="#">A Breast Cancer Genome Guided Therapy Study</a>	US	Mayo Clinic	Oncology	Mass cytometry, Imaging Mass Cytometry	Exploratory objective	N/A	Matthew P. Goetz	National Cancer Institute	Recruiting	2020	2022	100	Phase 2	June 7, 2019
NCT03981419	<a href="#">A Study to Evaluate the Effect of GRF6021 on Postoperative Recovery Following Primary Hip or Knee Arthroplasty</a>	US	Alkahest	Surgery	Mass cytometry	Primary outcome measure	N/A	Martha Tingle	Stanford University Medical Center	Recruiting	2019	2020	45	Phase 2	June 10, 2019
NCT03983460	<a href="#">Dupilumab Impact on Skin Resident Memory T Cells (Dupi/Trem)</a>	France	Association pour la Recherche Clinique et Immunologique	Autoimmunity	Mass cytometry	Primary outcome measure	N/A	Sophie Gilbert	none	Recruiting	2020	2021	20	N/A	June 12, 2019
NCT03993002	<a href="#">DAMP-Mediated Innate Immune Failure and Pneumonia After Trauma – the Harvard-Longwood (HALO) Campus Area Consortium (HALO)</a>	US	Beth Israel Deaconess Medical Center	Infection, trauma	Mass cytometry	Secondary outcome measure	N/A	Daniel Talmor, Valerie Banner-Goodspeed	U.S. Department of Defense	Suspended (temporarily due to COVID-19)	2019	2024	50	N/A	June 20, 2019

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NCT04009967	<a href="#">Biomarkers for Neoadjuvant Pembrolizumab in Non-Metastatic Prostate Cancer Positive by 18FDG-PET Scanning (PICT-01)</a>	Canada	CHU de Quebec-Universite Laval	Immuno-oncology	Imaging Mass Cytometry	Primary outcome measure	N/A	Yves Fradet	Merck Sharp & Dohme Corp.	Recruiting	2020	2022	30	Phase 2	July 8, 2019
NCT04060537	<a href="#">Identification of Novel Biomarkers of Response to Systemic Treatments in Renal Cell Cancer (ARTIST_RCC)</a>	UK	Cambridge University Hospitals NHS Foundation Trust	Immuno-oncology	Mass cytometry	Primary outcome measure	N/A	Sarah Welsh	none	Not yet recruiting	2020	2022	12	N/A (observational)	August 19, 2019
NCT04068194	<a href="#">Testing the Combination of New Anti-cancer Drug Nedisertib With Avelumab and Radiation Therapy for Advanced/Metastatic Solid Tumors and Hepatobiliary Malignancies</a>	US	National Cancer Institute	Immuno-oncology	Mass cytometry	Other outcome measure	N/A	Kristen Spencer	Rutgers Cancer Institute of New Jersey	Recruiting	2019	2022	92	Phase 1/2	August 28, 2019
NCT04091867	<a href="#">sEphB4-HSA With Cetuximab and RT in Patients With High Risk LAHNSCC and Heavy Smoking Histories</a>	US	University of Colorado, Denver	Immuno-oncology	Mass cytometry	Other outcome measure	N/A	Sana Karam	National Cancer Institute, Vasgene Therapeutics	Recruiting	2020	2021	30	Phase 1	September 17, 2019
NCT04101604	<a href="#">Biomarkers of Common Eye Diseases</a>	China	Sun Yat-sen University	Blood biomarkers	Mass cytometry	Primary outcome measure	N/A	Yingfeng Zheng	none	Recruiting	2019	2021	220	N/A (observational)	September 24, 2019
NCT04106817	<a href="#">Single Ascending Dose Challenge Study to Determine Safety and Reactogenicity of an Influenza Challenge Virus</a>	US	WCCT Global	Vaccine, infection	Mass cytometry	Exploratory objective	<a href="#">Publication</a>	Garry P. Nolan	Stanford University, NIH	Completed	2015	2015	35	Phase 1	September 27, 2019
NCT04116606	<a href="#">Antidepressant Trial With P2X7 Antagonist JNJ-54175446 (ATP)</a>	UK	Cancer Research UK Cambridge Institute	Blood biomarkers	Mass cytometry	Secondary outcome measure	N/A	Edward Bullmore	Janssen	Recruiting	2019	2021	142	Phase 2	October 4, 2019
NCT04134325	<a href="#">Study of PD-1 Inhibitors After CD30 CAR T Cell Therapy in Relapsed/Refractory Hodgkin Lymphoma</a>	US	UNC Lineberger Comprehensive Cancer Center	Immuno-oncology, CAR T cell therapy	Mass cytometry	Other outcome measure	N/A	Timothy Voorhees	American Society of Clinical Oncology	Recruiting	2019	2021	10	Early Phase 1	August 28, 2019
NCT04135079	<a href="#">Immune Profiling in Multiple Myeloma</a>	Italy	University of Turin	Oncology	Mass cytometry	Secondary outcome measure	N/A	Mario Boccadoro	none	Recruiting	2019	2022	50	N/A (observational)	October 22, 2019
NCT04181827	<a href="#">A Study Comparing JNJ-68284528, a CAR-T Therapy Directed Against B-cell Maturation Antigen (BCMA), Versus Pomalidomide, Bortezomib and Dexamethasone (PAD) or Daratumumab, Pomalidomide and Dexamethasone (DPd) in Participants With Relapsed and Lenalidomide-Refractory Multiple Myeloma (CARTITUDE-4)</a>	US	Janssen Research & Development	Immuno-oncology	Mass cytometry	Secondary outcome measure	N/A	Janssen Research & Development	none	Recruiting	2020	2026	400	Phase 3	December 2, 2019
NCT04211675	<a href="#">NK Cells Infusions With Irinotecan, Temozolomide, and Dinutuximab (STING)</a>	US	Nationwide Children's Hospital	Immuno-oncology	Mass cytometry	Other outcome measure	N/A	Mark Ranalli	Ohio State University	Not yet recruiting	2021	2024	31	Phase 1/2	December 26, 2019
NCT04222595	<a href="#">FluPRINT Study: Characterisation of the Immune and Transcriptional Response to LAIV</a>	UK	University of Oxford	Vaccine, infection	Mass cytometry	Primary outcome measure	N/A	Andrew Pollard	Centre for Clinical Vaccinology and Tropical Medicine, European Commission, Stanford University	Recruiting	2019	2020	40	N/A	January 10, 2020
NCT04231734	<a href="#">Ketogenic Diet in Patients With Untreated Low Tumor Burden Mantle Cell Lymphoma</a>	US	Weill Medical College of Cornell University	Oncology	Mass cytometry	Secondary outcome measure	N/A	Peter Martin	none	Recruiting	2020	2022	8	N/A	January 18, 2020
NCT04239859	<a href="#">Outcomes With Treatment and Withdraw of Secukinumab in Patients With Plaque Psoriasis</a>	Singapore	Singapore General Hospital	Autoimmunity	Mass cytometry	Secondary outcome measure	N/A	Ying Ying Leung	Translational Immunology Institute	Not yet recruiting	2021	2026	40	Phase 4	January 27, 2020
NCT04254419	<a href="#">Intra-tumoral Injection of Natural Killer Cells in High-Grade Gliomas (NK HGG)</a>	US	Nationwide Children's Hospital	Immuno-oncology	Mass cytometry	Other outcome measure	N/A	Mohamed S. Abdelbaki	none	Not yet recruiting	2021	2025	24	Phase 1	February 5, 2020
NCT04270149	<a href="#">Cancer Peptides Plus GM-CSF and Adjuvant in Breast Cancer</a>	US	Duke University	Immuno-oncology	Mass cytometry	Secondary outcome measure	N/A	Herbert Lyerly	none	Recruiting	2020	2024	18	Phase 1	February 17, 2020
NCT04271397	<a href="#">Immunological Biomarkers in Tuberculosis Management (OPTI-4TB)</a>	France	Hospices Civils de Lyon	Infection	Mass cytometry	Secondary outcome measure	N/A	Florence Ader	Service des Maladies Infectieuses - Hôpital de la Croix Rousse	Recruiting	2019	2023	60	N/A	February 17, 2020
NCT04271748	<a href="#">The Impact of Time Restricted Feeding in Crohn's Disease (TRF-CD)</a>	UK	Weill Medical College of Cornell University	Autoimmunity	Mass cytometry	Secondary outcome measure	N/A	Dana J Lukin	The Kenneth Rainin Foundation	Recruiting	2020	2021	20	N/A	February 17, 2020
NCT04273321	<a href="#">Efficacy and Safety of Corticosteroids in COVID-19</a>	China	Beijing Chao Yang Hospital	Infection (COVID-19)	Mass cytometry	Correlative	<a href="#">Publication</a>	Bing Sun	Beijing YouAn Hospital, Renmin Hospital of Wuhan University	Completed	2020	2020	86	N/A	February 18, 2020
NCT04305665	<a href="#">HIV Study on Measuring the Reservoir on Cellular Level to Cure Infection (HIV-Mercuri)</a>	Belgium	Ghent University Hospital	Infection	Mass cytometry	Primary outcome measure	N/A	N/A	none	Not yet recruiting	2020	2025	25	N/A (observational)	March 12, 2020
NCT04327570	<a href="#">In-depth Immunological Investigation of COVID-19 (CONAGlous)</a>	Belgium	Universitaire Ziekenhuizen Leuven	Infection (COVID-19)	Mass cytometry	Primary outcome measure	N/A	Joost Wauters	none	Recruiting	2020	2020	100	N/A (observational)	March 31, 2020
NCT04340024	<a href="#">Discovery of Biomarkers for Intrinsic Radiation Sensitivity in Cancer Patients</a>	Singapore	National Cancer Centre	Oncology	Mass cytometry	Primary outcome measure	N/A	Melvin Chua	Duke-NUS Graduate Medical School, Ferring Pharmaceuticals, ImmunoSCAPE, Decipher Biosciences	Recruiting	2015	2026	5000	N/A (observational)	April 9, 2020
NCT04352231	<a href="#">Luxembourgish Fiber Cohort (Lux-FICO)</a>	Luxembourg	Luxembourg Institute of Health	Immunology, gut microbiota	Mass cytometry	Other outcome measure	N/A	Maresh S. Desai	Centre Hospitalier du Luxembourg, Integrated Biobank of Luxembourg, Luxembourg Centre for Systems Biomedicine	Not yet recruiting	2020	2025	40	N/A	April 20, 2020

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NCT04358757	<a href="#">Immune and Physical Recovery Following Cesarean Delivery</a>	US	Stanford University	Surgery	Mass cytometry	Secondary outcome measure	N/A	Perez Sultan	none	Enrolling by invitation	2019	2021	40	N/A (observational)	April 24, 2020
NCT04378777	<a href="#">Immunophenotyping Assessment in a COVID-19 Cohort (IMPACT)</a>	US	National Institute of Allergy and Infectious Diseases	Infection (COVID-19)	Mass cytometry	Secondary outcome measure	N/A	Nadine Rouphael	Benaroya Research Institute, Boston Children's Hospital	Enrolling by invitation	2020	2022	2000	N/A (observational)	May 7, 2020
NCT04380545	<a href="#">Nivolumab, Fluorouracil, and Interferon Alpha 2B for the Treatment of Unresectable Fibrolamellar Cancer</a>	US	MD Anderson Cancer Center	Immuno-oncology	Mass cytometry	Other outcome measure	N/A	Ahmed O. Kaseb	National Cancer Institute	Not yet recruiting	2020	2021	15	Phase 1/2	May 8, 2020
NCT04393285	<a href="#">Abemaciclib and Letrozole to Treat Endometrial Cancer</a>	US	Gynecologic Oncology Group	Oncology	Imaging Mass Cytometry	Other outcome measure	N/A	Marilyn Huang	none	Recruiting	2020	2023	50	Phase 2	May 19, 2020
NCT04403386	<a href="#">Prospective Natural History Study of Smoking, Immune Cell Profiles, Epigenetics and COVID-19</a>	US	National Institute of Environmental Health Sciences	Infection (COVID-19)	Mass cytometry	Primary outcome measure	N/A	Stavros Garantziotis	none	Recruiting	2020	2022	200	N/A (observational)	May 27, 2020
NCT04416139	<a href="#">Mesenchymal Stem Cell for Acute Respiratory Distress Syndrome Due for COVID-19 (COVID-19)</a>	Mexico	Instituto Nacional de Ciencias Medicas y Nutricion Salvador Zubiran	Infection (COVID-19)	Mass cytometry	Secondary outcome measure	N/A	Martin Iglesias	none	Recruiting	2020	2021	10	Phase 2	June 4, 2020
NCT04472013	<a href="#">Systematic Assessment of SARS-CoV-2 Neurotropic Capacity in Modestly and Critically Ill Patients, and Patients Who Died From COVID-19</a>	Switzerland	University Hospital, Basel	Infection (COVID-19)	Mass cytometry	Primary outcome measure	N/A	Gregor Hutter	Kantonsspital Baselland Liestal, Botnar Research Centre for Child Health	Recruiting	2020	2022	40	N/A (observational)	July 15, 2020
NCT04482335	<a href="#">PRECISION medicine Across the Disease Continuum to Prevent and Treat Rheumatoid Arthritis (PRECISE-RA)</a>	UK	University of Manchester	Autoimmunity	Mass cytometry	Primary outcome measure	N/A	Maya H. Buch	Manchester Royal Infirmary	Not yet recruiting	2020	2025	500	N/A	July 22, 2020
NCT04484441	<a href="#">Maternal-Fetal Immune Responses to Fetal Surgery</a>	US	Mayo Clinic	Surgery	Mass cytometry	Primary outcome measure	N/A	Rodrigo Ruano	none	Recruiting	2020	2023	60	N/A	July 23, 2020
NCT04510350	<a href="#">Investigation of Novel Immunological Biomarkers by Mass Cytometry in Patients With Early Multiple Sclerosis (CISCO)</a>	France	Rennes University Hospital	Autoimmunity	Mass cytometry	Primary outcome measure	N/A	N/A	none	Recruiting	2020	2022	90	N/A (observational)	August 12, 2020
NCT04513028	<a href="#">Beta Glucan's Effect on Pembrolizumab Immunologic Response in Stage III-IV Melanoma</a>	US	University of Louisville	Immuno-oncology	Mass cytometry	Primary outcome measure	N/A	Kelly McMasters	none	Recruiting	2020	2025	30	N/A	August 14, 2020
NCT04537689	<a href="#">Outcomes With Treatment and Withdraw of Ixekizumab in Patients With Plaque Psoriasis</a>	Singapore	Singapore General Hospital	Autoimmunity	Mass cytometry	Secondary outcome measure	N/A	Ying Ying Leung	Translational Immunology Institute	Not yet recruiting	2020	2027	40	Phase 4	September 3, 2020
NCT04566029	<a href="#">Evolution of Proteomic Profiles of Intestinal Microbiota in Patients With Locally Advanced or Metastatic Urothelial Carcinomas (AMI)</a>	France	Centre Hospitalier Universitaire de Nimes	Oncology	Mass cytometry	Secondary outcome measure	N/A	Nadine Houede	Centre Leon Berard, ICM parc euromedecine, Institut Sainte Cancerologie Lucien Neuwirth, ICO-Site Paul Papin	Not yet recruiting	2020	2022	40	N/A (observational)	September 28, 2020
NCT04570306	<a href="#">Transcriptional and Immune Parameters of Response to Belimumab</a>	Greece	Biomedical Research Foundation, Academy of Athens	Autoimmunity	Mass cytometry	Other outcome measure	N/A	Dimitrios Boumpas	none	Not yet recruiting	2020	2023	80	N/A (Observational)	September 30, 2020
NCT04581343	<a href="#">A Phase 1B Study of Canakinumab, Spartalizumab, Nab-paclitaxel, and Gemcitabine in Metastatic PC Patients (PanCAN SB1)</a>	US	Pancreatic Cancer Action Network	Immuno-oncology	Imaging Mass Cytometry	Other outcome measure	N/A	Paul Oberstein	Novartis Pharmaceuticals	Recruiting	2020	2022	10	Phase 1	October 9, 2020
NCT04588038	<a href="#">NT-17 for the Treatment of Recurrent Squamous Cell Carcinoma of Head and Neck Undergoing Surgery</a>	US	University of California, San Francisco	Immuno-oncology	Mass cytometry	Secondary outcome measure	N/A	Hyunseok Kang	NeoImmuneTech	Not yet recruiting	2020	2022	10	Phase 1	October 19, 2020
NCT04604912	<a href="#">Biomarkers in Food Allergy Diagnosis (AP515)</a>	Luxembourg	Luxembourg Institute of Health	Autoimmunity	Mass cytometry	Primary outcome measure	N/A	Annette Kuehn	Centre Hospitalier du Luxembourg, Odense University Hospital, Technische Universität München, University of Luxembourg, Integrated Biobank of Luxembourg	Recruiting	2017	2022	50	N/A (observational)	October 27, 2020
NCT04638582	<a href="#">Pembrolizumab as Neoadjuvant Therapy for Resectable Stage IA3 to IIA Non-Small Cell Lung Cancer (NSCLC)</a>	Canada	McGill University Health Centre/Research Institute of the McGill University Health Centre	Immuno-oncology	Imaging Mass Cytometry	Other outcome measure	N/A	Jonathan Spicer	none	Not yet recruiting	2021	2024	44	Phase 2	November 20, 2020
NCT04638751	<a href="#">ARGONAUT: Stool and Blood Sample Bank for Cancer Patients</a>	US	Persephone Biosciences	Oncology	Mass cytometry	Secondary outcome measure	N/A	Stephanie Culler	none	Recruiting	2020	2024	4000	N/A (observational)	November 20, 2020
NCT04652960	<a href="#">Duvelisib and Nivolumab for the Treatment of Stage IIB-IVB Mycosis Fungoides and Sezary Syndrome</a>	US	National Cancer Institute	Immuno-oncology	Mass cytometry	Other outcome measure	N/A	Neha Mehta-Shah	Yale University Cancer Center	Not yet recruiting	2021	2022	18	Phase 1	December 4, 2020

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NCT04669743	<a href="#">Innate Immunity in Ozone-induced Airway Inflammation in COPD (CO3PD)</a>	US	University of California, San Francisco	Pulmonary Disease	Mass cytometry	Exploratory objective	N/A	Mehrdad Arjomandi	none	Recruiting	2016	2024	72	N/A	December 16, 2020
NCT04682314	<a href="#">B-Cell Reconstitution After Hematopoietic Stem Cell Transplantation (B-REC)</a>	France	Assistance Publique - Hôpitaux de Paris	Stem Cell Transplantation	Mass cytometry	Primary outcome measure	N/A	N/A	none	Not yet recruiting	2020	2023	60	N/A	December 23, 2020
NCT04703244	<a href="#">Development of Patient Derived Xenografts (PDX) in Patients With Breast Cancer</a>	US	Mayo Clinic	Oncology	Mass cytometry	Secondary outcome measure	N/A	Judy C. Boughey and Matthew P. Goetz	none	Not yet recruiting	2021	2042	100	N/A (observational)	January 11, 2021
NCT04715568	<a href="#">Secondhand Tobacco Smoke and Cardiovascular Disease</a>	US	University of California, San Francisco	Cardiac disease	Mass cytometry	Primary outcome measure	N/A	Mehrdad Arjomandi	Flight Attendant Medical Research Institute	Not yet recruiting	2021	2025	100	Phase 4	January 20, 2021