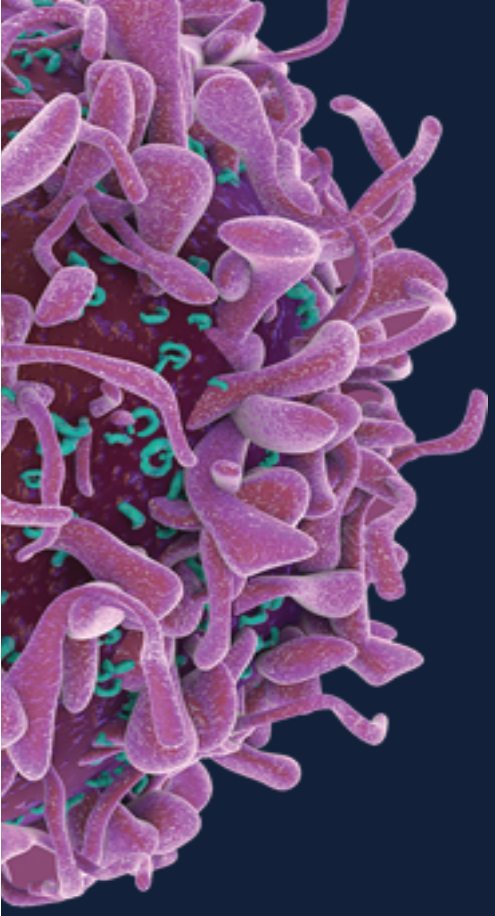

OmicsX
innovation INSIGHTS

Global Oncology Preclinical Drug Developers 2021

Technologies ◎ Pipeline ◎ Companies ◎ Deals

first **intelligence report to cover Active 1001 Preclinical Companies**

World's Largest Active Resource for Decision Making

ISBN 978-81-926399-0-4

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1009
Companies Covered

2500+
Oncology Targeting Molecules

Global Oncology Clinical Drug Developers 2021

World's Largest Resource on Oncology Drug Development

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☐ *Individual Profiles of 1001 Active Oncology Preclinical Stage Drug Developer Companies*

Individual Drug Developer Profile includes:

Company Overview, Key Technology Platform, Venture Funding Rounds, Oncology centered Deals & Partnership, Collaborations and Business Insights.

Oncology Preclinical Drug Pipeline –Drugs name, its targets, with details of its development for various indications for cancer cure, FDA/EMEA Orphan drug status.

Management Profile –Address, Contact number, e-mail, Key Management / Decision Maker (CXOs) name and designation, with individual Linked ID and contact emails.

North America

Australia

List of Companies

Pre-Clinical Stage Cancer Drug Developers

Section A

1001 Preclinical Stage Oncology Drug Developers

Intelligence Snapshot

WORLDWIDE DISTRIBUTION OF ONCOLOGY PRECLINICAL DRUG DEVELOPERS

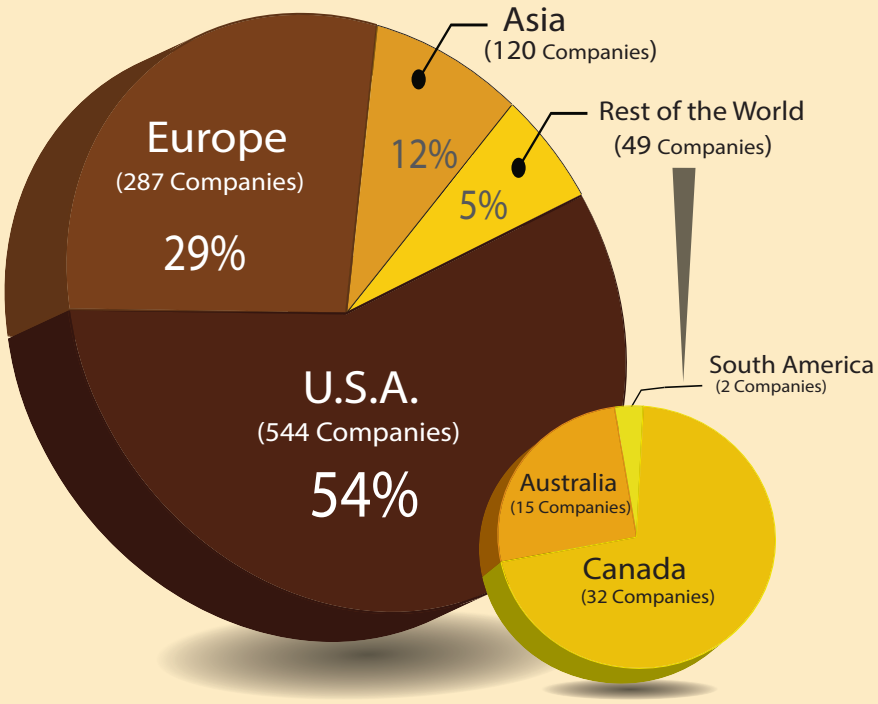

Fig A.1

1001 Active Preclinical Oncology Drug Development Companies present in U.S.A *vs*. Europe *vs*. Asia *vs*. Rest of the World.

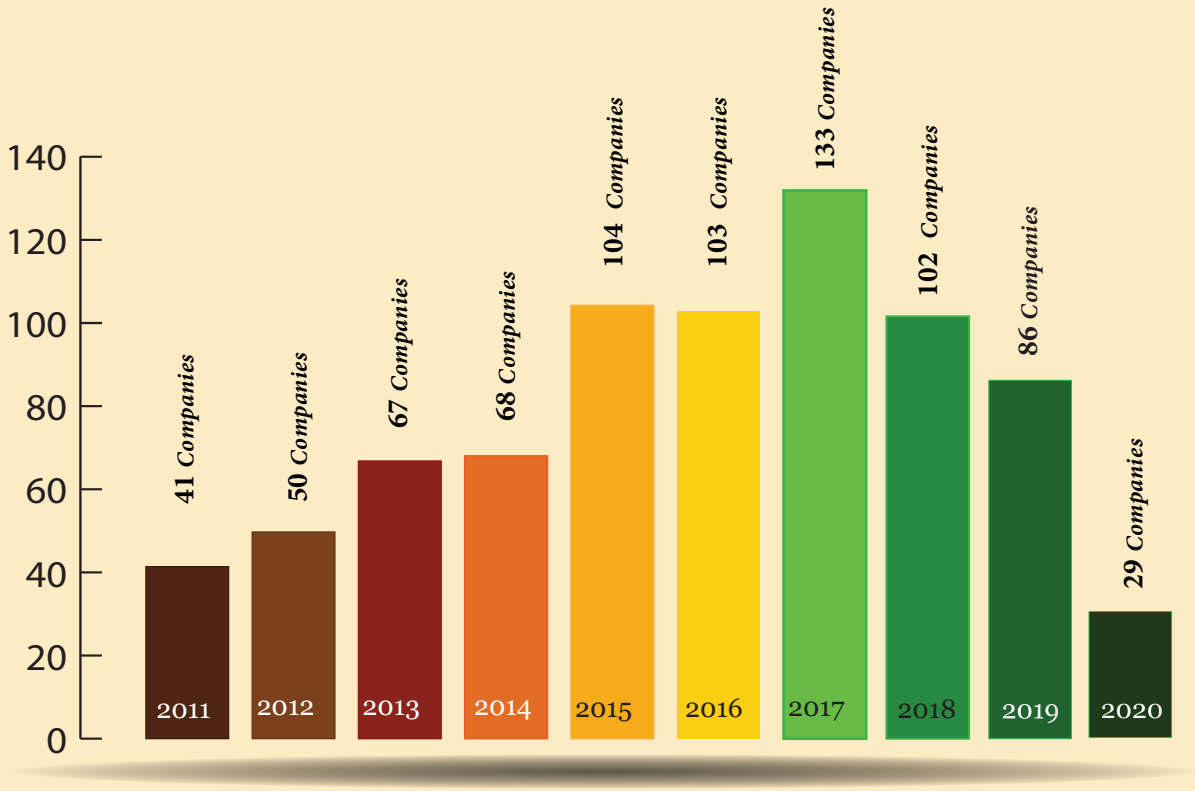

Figure A.2

Bar Graph showing 10 years distribution of Active Preclinical Stage Oncology Drug Developers based on year of establishment. 2020 shows less companies as many new drug developers formed during this duration are either early stage company to be profiled or are in sheath mode.

Our studies shows that from past ten years, each year between 150-170 new oncology drug developers are created worldwide. In above bar graph, many of the prior 2017 formed drug developers moved to clinical stage or were acquired/merged.

INFOGRAPHICS–DISTRIBUTION OF IMMUNOONCOLOGY STARTUPS IN EUROPE & ASIA

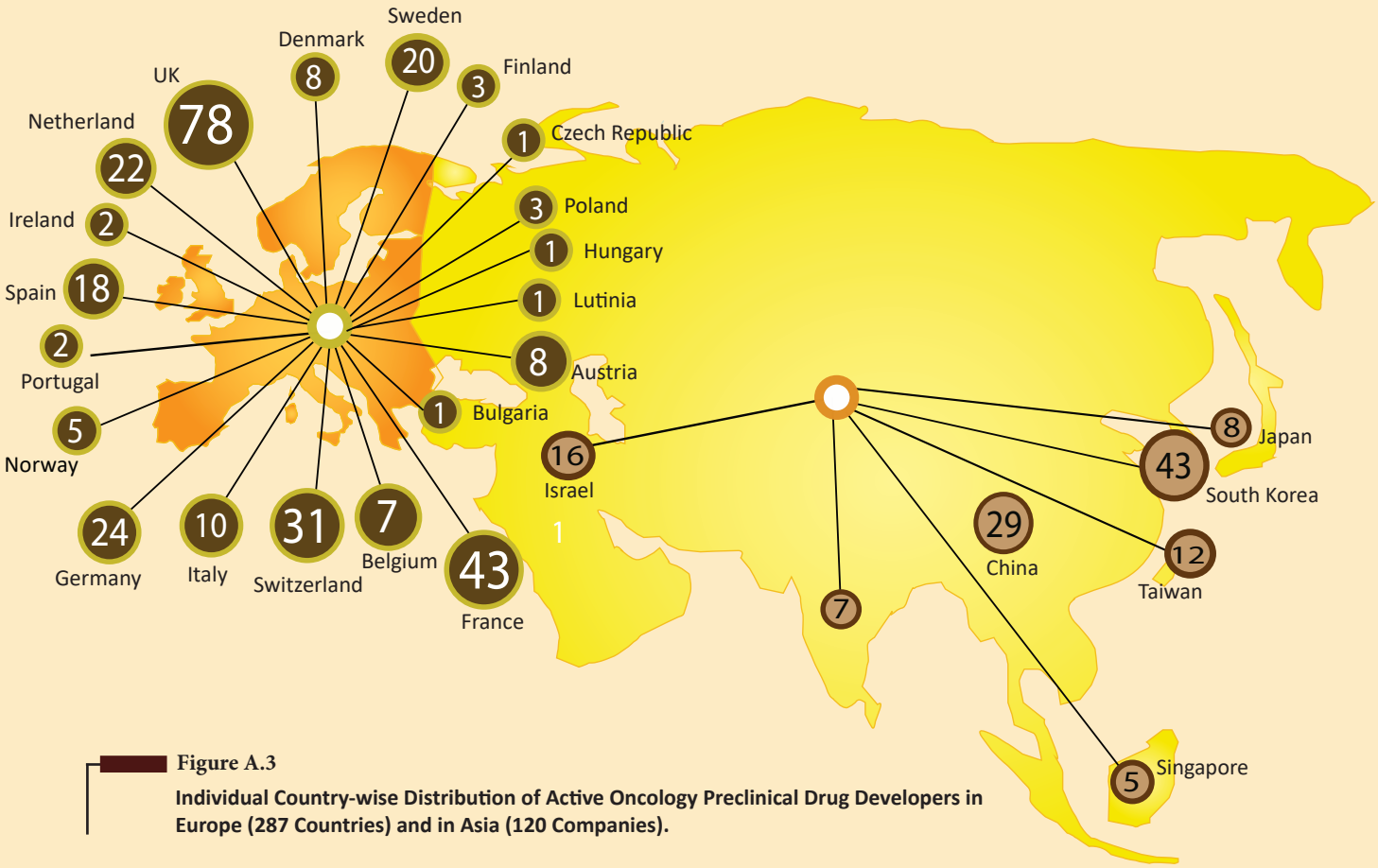

Figure A.3

Individual Country-wise Distribution of Active Oncology Preclinical Drug Developers in Europe (287 Countries) and in Asia (120 Companies).

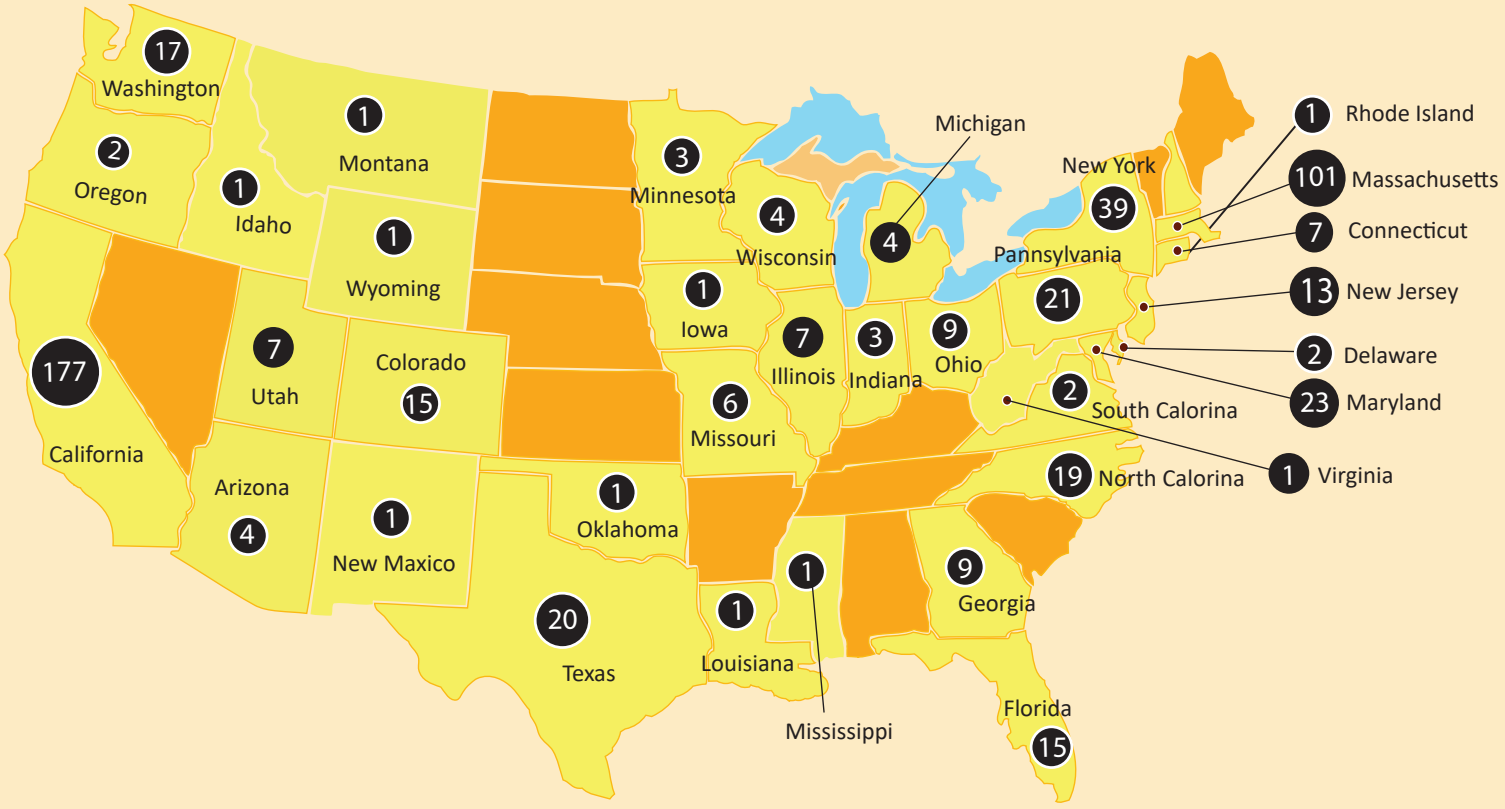

Figure A.4

State-wise Distribution of ImmunoOncology Startups in U.S.A.

Oncology Preclinical Drug Developers Developing Small Molecule Kinase Inhibitors Cancer Targeting Drugs

Table No. A.2

No.	Company Name	Founded Year	Country	Description
1.	1st Biotherapeutics Inc.	2016	South Korea	1st Biotherapeutics is developing CNS penetrating kinase inhibitor, targeting neurodegenerative diseases, oncology and rare diseases.
2.	AiViva BioPharma, Inc.	2015	United States	AiViva Biopharma is developing multi-kinase inhibitor drug products in dermatology, ophthalmology, oncology and urology.
3.	Allinky Biopharma SL	2009	Spain	Allinky is developing a small molecule inhibitor of Ras protein.
4.	Allomek Therapeutics LLC	2010	United States	Allomek (formerly, known as Allostem Therapeutics), is a virtual pharma company, discover and develop small molecule allosteric MEK kinase inhibitors for the treatment of cancer.
5.	Almac Discovery Ltd.	2008	United Kingdom	Almac Discovery focuses on the discovery and development of therapeutics for the treatment of cancer and associated conditions.
6.	Amplia Therapeutics Limited	2000	Australia	Amplia Therapeutics is developing two highly-promising drug candidates targeting Focal Adhesion Kinase (FAK) that were discovered by the Australian-based Cancer Therapeutics Cooperative Research Centre (CRC).
7.	Anchiano Therapeutics, Inc.	2004	United States	Anchiano Therapeutics (formely BioCanCell) is developing novel small-molecule inhibitors of RAS and PDE10/β-catenin.
8.	AndroScience Corporation	1999	United States	AndroScience's ASC-ST.Z1 and ASC-ST.X1 are small molecules, which potently inhibit STAT3 and STAT5 activity are currently in preclinical studies for solid and hematological cancers.
9.	Angex Pharmaceutical, Inc.	2017	United States	Angex Pharmaceutical is developing small molecules heterocyclic compounds as PRMT5 and TRK Kinase inhibitors targeting solid tumors.
10.	Applied Therapeutics, Inc.	2016	United States	Applied Therapeutics' AT-104 is an oral selective PI3K Delta and Gamma inhibitor and is in preclinical development for primary B-cell malignancies and is expected to enter clinical trials in 2021.
11.	ARC Therapeutics, Inc.	2020	United States	ARC Therapeutics is an early stage biotech company developing small molecule inhibitors of cyclin-dependent kinases (CDKs) for the treatment of resistant cancers.
12.	Arjuna therapeutics	2018	United States	Arjuna Therapeutics (formerly Nanogap Therapeutics) is developing small molecule inhibitor of KRAS protein.
13.	Arrien Pharmaceuticals LLC	2011	United States	Arrien Pharmaceuticals is developing small molecule inhibitor of the Salt Inducible Kinases 2 and 3 (SIK2, SIK3) and selective and brain penetrable small molecule inhibitor of Maternal Embryonic Leucine zipper Kinase (MELK), targeting cancer.
14.	Ascletis Pharma, Inc.	2011	China	Ascletis Pharma is developing small molecule kinase inhibitors for the treatment of cancer.
15.	AtlasMedx, Inc.	2016	United States	AtlasMedx is developing multifunctional small molecule cancer therapies targeting wellvalidated compensatory cellular pathways important to carcinogenesis and drug resistance.
16.	Atomwise Inc.	2012	United States	Atomwise is an AI driven drug discovery company, developing a pipeline of small-molecule drug candidates based on the uses of deep learning for structure-based drug discovery.

The above companies are further linked to individual Company Profile (Section B) for complete information.

Oncology Preclinical Drug Developers Developing Small Molecule Proteolysis Targeting Chimera (PROTACs) Cancer Targeting Drugs

Table No. A.3

No.	Company Name	Founded Year	Country	Description
1.	Amphista Therapeutics Ltd	2017	United Kingdom	Amphista is developing proteolysis targeting chimeras, or PROTACs, designed to make the cell degrade harmful proteins to treat cancer. Amphista's platform is independent of traditional E3 ubiquitin ligases process and is developing potent bifunctional small molecules to augment the body's own processes to remove disease-associated proteins
2.	ARTSaVIT Ltd.	2015	Isreal	ARTSaVIT is developing small molecule ARTS which imitates to selectively induce apoptosis in cancer cells. ARTS protein regulates the levels of anti-apoptotic proteins by promoting their degradation.
3.	C4 Therapeutics Inc.	2015	United States	C4 Therapeutics' proprietary technology platform, TORPEDO (Target ORiented ProtEin Degrader Optimizer), is used to synthesize a new class of small molecule protein degraders that are designed to selectively and efficiently destroy disease-causing proteins, including targets previously considered to be undruggable.
4.	Captor Therapeutics Inc	2017	Switzerland	Captor Therapeutics' proprietary Obteron™ platform enables robust drug discovery platform is based on an array of chemical biology tools that hijacks intracellular protein degradation machinery and is capable of reconstituting interactions between ubiquitin ligases and their molecular partners, which restores cellular homeostasis and prevents cancer progression.
5.	Cullgen Inc.	2018	United States	Cullgen's proprietary ubiquitin-mediated, small molecule-induced target elimination technology, (uSMITE™), focuses on selective degradation of disease-causing proteins and comprises assembly mechanism of the cullin-RING family of E3 ubiquitin ligases enzymes.
6.	FIMECS, Inc.	2018	Japan	FIMECS proprietary drug discovery platform - RaPPIDS™ (Rapid Protein Proteolysis Inducer Discovery System) is used to generate therapeutic candidates of the targeted protein degrader. The platform allows synthesizing and evaluating various degraders quickly based on the company's proprietary know-how and diversity-oriented synthesis, and delivery of the drug candidates with the best combination of target protein binders, linkers, and E3 ligase binders.
7.	Halda Therapeutics LLC	2018	United States	Halda is developing a targeted protein degradation (TPD) platform with PROTACs is a novel therapeutic modality that enables to bind a protein of interest and bring it to a ubiquitin ligase, which then tags it for degradation.
8.	InnoCure Therapeutics Inc.	2018	Isreal	Innocure utilizes its platform technology TDbUM™ (Target Degradation by Ubiquitin Mediation) for more robust screening of PROTACs molecules.
9.	Kymera Therapeutics, Inc.	2016	United States	Pegasus™ is Kymera Therapeutics' proprietary protein degradation platform, created to improve the effectiveness of targeted protein degradation and generate a pipeline of novel therapeutics for previously undruggable diseases. The platform consists of informatics driven target identification, novel E3 ligases, proprietary ternary complex predictive modeling capabilities, and degradation tools.

Oncology Preclinical Drug Developers Developing Cancer Targeting RNA Inhibitors / Modulators

Table No. A.4

No.	Company Name	Founded Year	Country	Description
1.	Accent Therapeutics, Inc.	2017	United States	Developing small molecule therapies that selectively inhibit RNA-modifying proteins (RMPs) that drive cancer.
2.	Ariz Precision Medicine, Inc.	2015	United States	ARIZ is using RNA Interference technology to modulate regulation of PRDM proteins, that regulate the histone code, master regulators of proliferation, differentiation, migration and survival in cancer.
3.	Arrakis Therapeutics, Inc.	2015	Spain	Arrakis is discovering and developing small molecule therapeutics inhibitors of RNA function.
4	Curamir Therapeutics Inc.	2019	United States	Curamir Therapeutics is developing Gene Therapy based on its proprietary miRNA engineering platform and insights into cancer biology, aiming to address unmet needs to overcome drug resistance and toxicity associated with current oncology therapies.
5	Epics Therapeutics SA	2018	Belgium	EPICS Therapeutics is a developing small molecule drugs targeting RNA epigenetic mechanisms involved in cancer development.
6	ExonanoRNA LLC	2017	United States	ExonanoRNA is preclinical stage nanotechnology company, developing exosomes-based drugs and innovative pharmaceuticals based on its unique RNA nanotechnology platform for next generation targeted drug delivery and disease diagnosis.
7	Gotham Therapeutics Corp.	2017	United States	Gotham is developing a pipeline of small molecules capable of changing the activity of proteins that modify messenger RNA Gotham is developing small molecule inhibitors against protein complex METTL3/METTL14, a SAM-dependent methyltransferase that modifies mRNA encoded adenosine in the messenger RNA to m6A and thereby regulates protein expression.
8	InteRNA Technologies B.V.	2006	Netherlands	InteRNA Technologies is developing small molecules microRNA based compound currently in preclinical studies for the treatment of cancer.
9	Iovacc Ltd.	2015	United Kingdom	IOVacc's pipeline consists of miRNA delivered by vectors such as LNP (Lipid Nano-Particles) and is working to identify new pathways to enhance the chemosensitivity in tumors.
10	MiReven Pty Ltd.	2010	Australia	MiReven is developing small molecule, micro-RNA therapies (MicroRNA-7) for the treatment of cancer.
11	miRecule, Inc.	2016	United States	miRecule is an early-stage biotechnology company developing microRNA-based therapeutics to address major challenges in cancer therapy.
12	Natsar Pharmaceuticals, Inc.	2016	United States	Natsar Pharmaceuticals is developing a small molecule targeting RNA helicase enzyme to treat Sarcoma and other solid tumors.
13	OncoTrap Inc.	2017	United States	OncoTrap is developing a nucleic acid delivery platform for accommodating nucleic acid (mRNA & RNAi) - based therapeutics, designed to deliver therapeutic genes to tumor sites, using lipid-protamine-DNA (LPD) nanoparticles.
14	Phio Pharmaceuticals Corp.	2011	United States	Phio Pharmaceuticals (formerly RXi Pharmaceuticals) is developing the next generation immuno-oncology therapeutics based on its proprietary self-delivering RNAi (INTASYL™) therapeutic platform.

Oncology Preclinical Drug Developers Developing Nanoparticles / Nanotechnology based Cancer Targeting Drugs

Table No. A.5

No.	Company Name	Founded Year	Country	Description
1.	Altevax SAS	2016	France	Altevax is developing new class of nanoparticle adjuvants that trigger a strong immune system response against a given tumour target (a specific antigen), significantly boosting their effectiveness. It activates the Cytotoxic T Cells (also called CD8 lymphocytes or CTLs), which are more effective than antibodies and constitute the most effective immune barrier against cancer.
2.	Aphios Corporation	1993	United States	Aphios is a nanobiotech company developing therapeutic products for the treatment of various diseases with special focus on neurological indications. Its drug delivery platform include: Phospholipid Nanosomes (for IV or topical administration), Polymer Nanospheres (for oral/depot/IV delivery) and Protein Nanoparticles (for oral/subcutaneous/pulmonary delivery). Phospholipid Nanosomes were developed by CFN (critical fluid nanosomes) process, Polymer Nanospheres by PNS process and Protein Nanoparticles by PNP process.
3.	Arrogene Nanotechnology, Inc.	2007	United States	Arrogene is a biotechnology company, developing nano-biopolymers for the diagnosis and treatment of cancer. The polymer system contains covalently attached modules including cancer marker-targeting drug (monoclonal antibody and/or antisense oligonucleotide), targeting antibodies, pH-dependent hydrophobic unit to facilitate endosomal release, PEG for protection, and an optional fluorescent dye or MRI- compatible tracer for imaging.
4.	AsclepiX Therapeutics, Inc.	2011	United States	AsclepiX Therapeutics is developing novel peptide platform with the power to inhibit and potentially even reverse disease progression of ocular diseases and cancer. Its platform technology combine short therapeutic biomimetic peptides with delivery by biodegradable phagocytosis-resistant micro- and nanoparticles.
5.	Avidea Technologies, Inc.	2013	United States	Avidea Technologies is a preclinical stage company developing polymer-based drugs intended to provide vaccines for cancer treatment and infectious diseases. Avidea's SNAP Platform (Self-assembling Nanoparticles based on Amphiphilic Peptides) packages drug molecules into nanoparticles of uniform size that are designed to target specific tissues and cell populations.
6.	Avidity Biosciences, Inc.	2013	United States	Avidity Biosciences (formely Avidity NanoMedicines), is developing therapeutics - Antibody Oligonucleotide Conjugates (AOC™). Avidity's proprietary ARC™ platform creates self-assembling, polymeric nanoparticles that encapsulate one or more siRNA and are decorated with monoclonal antibodies for cell-specific binding and internalization. ARCs™ overcome the cell delivery barrier that has historically limited siRNAs. ARCsTM have been optimized for in vivo delivery of siRNAs to solid tumors.
7.	CaroGen Corporation	2015	United States	CaroGen is developing virus-like vesicle (VLV) technology incorporating two unrelated animal viruses: the alphavirus Semliki Forest virus (SFV) and rhabdovirus vesicular stomatitis virus (VSV), producing particles that have limited replication competence *in vivo*. The VLVs generated can enter into cells of treated subject where, although limited, they propagate sufficiently to express the VLV-encoded antigens to be presented to the host immune system.
8.	Calevia Inc.	2013	Canada	Calevia is developing graphene based nanotechnology platform for the precise targeting and thermal eradication of solid cancer tumors.
9.	CANQURA Oncology AB	2012	Sweden	CANQURA Oncology is developing lipid containing particles comprising Nanoparticulate Quillaja saponins for the treatment of cancer.

Oncology Preclinical Drug Developers Developing Oncolytic Virus Based Cancer Targeting Drugs

Table No. A.6

No.	Company Name	Founded Year	Country	Description
1.	Abalos Therapeutics	2019	Germany	Abalos Therapeutics is developing oncolytic therapeutics based on a specific arenavirus strain that preferentially infects and proliferates in cancer cells generating a strong anti-tumor immune response.
2.	Adze Biotechnology, Inc.	2019	United States	Adze Biotechnology is developing systemically deliverable oncolytic immunotherapies, cancer vaccines and PD-L1 decoy proteins in collaboration with the Mayo clinic.
3.	American Gene Technologies	2007	United States	American Gene Technologies (AGTII) is developing bio-safe, high efficiency lentivirus therapies to treat cancer and other chronic human diseases.
4.	BIoEclipse Therapeutics	2006	United States	BioEclipse platform delivers the oncolytic virus packed inside the cytokine-induced killer (CIK) cells thus protecting the virus from the immune system. CIK cells have the ability to deliver the virus directly to the sites of metastatic disease, where the cells serve as viral production factories in situ.
5.	Bionoxx Inc.	2016	South Korea	Bionoxx platform technology (OTS-400) is based on oncolytic vaccinia virus armed with transgene that provides safety margin when added with myeloid modulation technology.
6.	BlueSky Vaccines KG	2015	Austria	BlueSky Vaccines is developing oncolytic vaccines against cancer, by combining tumor cell killing activities of oncolytic viruses with immunostimmulatory transgenes and antigenes.
7.	CanVirex AG	2017	Switzerland	CanVirex's Oncolytic Measles Virus Platform is designed for the destruction of cancer cells, and Tumor-restricted delivery of immune modulating encoded transgenes.
8.	CaroGen Corporation	2015	United States	CaroGen's proprietary virus-like vesicle (VLV) technology is a hybrid of components from two unrelated animal viruses: the alphavirus Semliki Forest virus (SFV) and rhabdovirus vesicular stomatitis virus (VSV), producing particles that have limited replication competence in vivo. The VLVs generated can enter into cells of treated subject where, although limited, they propagate sufficiently to express the VLV-encoded antigens to be presented to the host immune system.
	Catamaran Bio, Inc.	2020	United States	Catamaran Bio is developing novel, off-the-shelf allogeneic CAR-NK cell therapies designed to treat a broad range of cancers, including solid tumors.
9.	CureVax, LLC	2014	United States	CureVax is developing recombinant IL-2-secreting vaccinia virus-based, multivalent antigen retrieval platform using five proprietary patient derived melanoma cells.
10.	Cynvec, LLC	2004	United States	Cynvec is focused on developing Sindbis-based viral vectors as standalone oncolytic therapeutics, delivery systems for monoclonal antibodies and cytokines as well as cancer diagnostic products.
11.	Cytonus Therapeutics, Inc.	2018	United States	Cytonus Therapeutics is developing better targeting Enucleated Cells (Cargocytes™) as a novel platform for delivering oncolytic viruses to treat metastatic cancer.
12.	CZ Biomed Corporation	2009	United States	CZ BioMed is developing a new class of potent, genetically engineered common cold virus RVLYSIS® that selectively kills tumor cells, but not normal cells.

Oncology Preclinical Drug Developers Developing Cancer Targeting Cellular Therapies - CAR-T/CAR-NK & other Cell based Therapies

Table No. A 7

No.	Company Name	Founded Year	Country	Description
1.	A2 Biotherapeutic, Inc.	2018	United States	A2 Biotherapeutics engineers T cells that target the loss of genetic material in tumors, enabling the selective killing of tumor cells while leaving normal cells unharmed.
2.	Aavocyte, Inc.	2019	United States	Aavocyte focuses on developing various T cell immune therapy products to treat cancers based on its unique precise targeting rAAV delivery platform.
3.	AbClon Inc.	2010	South Korea	AbClon has developed zCAR-T, a platform for optimizing new generation CAR-T cells, which when administrated alone, would elicit no responses. zCAR-T contain a switchable-hapten serving as a controllable link between tumorspecific antigen and CAR-T cell.
4.	Adicet Bio, Inc	2014	United States	Adicet is engineering γδ T cells with chimeric antigen receptors (CARs) and T cell receptors (TCRs) directed to disease-specific cell surface and intracellular targets in order to enable the precise engagement and killing of tumor cells.
5.	AgenTus Therapeutics, Inc.	2017	United States	AgenTus Therapeutics is developing allogeneic iNKT cells in the unmodified and modified with engineered receptors, such as T cell receptors (TCRs) and Chimeric Antigen Receptors (CARs), designed to supercharge the human immune system cells to seek and destroy cancer.
6.	AgonOx, Inc.	2008	United States	AgonOx is developing autologous adoptive Cell Therapy Program targeting OX40 and has several late preclinical T cell therapy assets are in development.
7.	Aleta Biotherapeutics	2015	United States	Aleta has created a unique portfolio of multi-antigen targeting solutions for cell therapy, designed to address the critical issues of CAR-T persistence, tumor antigen loss leading to patient relapse, and tumor antigen heterogeneity.
8.	Alphageneron Pharmaceuticals, Inc.	2020	United States	Alphageneron Pharmaceuticals is an early stage biopharma company developing NK Cell immunotherapies for cancers and viral infections.
9.	Alloplex Biotherapeutics LLC	2016	United States	Alloplex Biotherapeutics is a cellular therapeutics company developing a whole blood derived multicellular adoptive immunotherapy.
10.	Anixa Biosciences, Inc.	1982	United States	Anixa Biosciences is developing chimeric antigen receptor T-cell (CAR-T) based drugs targeting Ovarian Cancer.
11.	Anocca AB	2014	Sweden	Anocca is developing technology platform for analysis of T-cell biology to unlock the therapeutic potential of T-cell immunity in oncology, infectious disease and autoimmunity. Anocca's technologies focus on delivering TCR-modified T-cell therapies (TCR-T) in oncology.
12.	Appia Bio Inc.	2020	United States	Appia Bio's novel platform can create a broad array of allogeneic NKT and T cell types, and can be further engineered to address challenges specific to tumor microenvironments.
13.	aratinga.bio TNP	2017	France	Developing proprietary platform using T cells as therapeutics.
14.	Arbele Corp.	2016	China	Developing next-gen CAR-T.
15.	ARCE Therapeutics, Inc.	2020	Taiwan	ARCE Therapeutics is developing chimeric antigen receptor (CAR-T) T cell therapy products for the treatment of various forms of cancers, including hematological cancers and solid tumors.
16.	Arsenal Bio, Inc.	2018	United States	ArsenalBio is developing first in class programmable cellular therapies to improve the ability of T cell therapies to fight a broader range of cancers more effectively.

Oncology Preclinical Drug Developers Developing Cancer Targeting Monoclonal Antibodies

Table No. A.8

No.	Company Name	Founded Year	Country	Molecule Name	Target	Development Stage	Indication	Description
1.	Abound Bio, Inc.	2019	United States	UNDISCLOSED PIPELINE				Monoclonal Antibody
2.	ABBA Therapeutics AG	2016	Switzerland	UNDISCLOSED PIPELINE				Monoclonal Antibody
3.	AbClon Inc.	2010	South Korea	AC101	EGF	IND	Breast Cancer	Monoclonal Antibody
4.	Abcuro, Inc.	2016	United States	Undisclosed	KLRG1	Preclinical	Breast Cancer	Monoclonal Antibody
5.	Abeome Corporation	2000	United States	ABM101	PD-L1	Preclinical	Solid Tumors	Monoclonal Antibody
6.	Abexxa Biologics	2015	United States	UNDISCLOSED PIPELINE				Monoclonal Antibody
7.	Abilita Bio, Inc.	2014	United States	UNDISCLOSED PIPELINE				Monoclonal Antibody
8.	Abologix Sàrl	2018	Switzerland	rH225	JAM-C	Preclinical	Non-Hodgkin´s Lymphoma	Monoclonal Antibody
9.	Abound Bio, Inc.	2019	United States	UNDISCLOSED PIPELINE				Monoclonal Antibody
10.	AbSano B.V.	2018	Netherlands	Undisclosed	Plexin D1	Preclinical	Solid Tumors	Monoclonal Antibody
11.	Absolve Therapeutics, Inc.	2019	United States	UNDISCLOSED PIPELINE				Monoclonal Antibody
12.	Abzyme Therapeutics, LLC	2010	United States	UNDISCLOSED PIPELINE				Monoclonal Antibody
13.	Adaptate Biotherapeutics	2019	United Kingdom	UNDISCLOSED PIPELINE				Monoclonal Antibody
14.	Adecto Pharmaceuticals	2014	United States	ADP, ADP13	ADAM8	Preclinical	Triple Negative Breast Cancer	Monoclonal Antibody
15.	AIMM Therapeutics	2004	Netherlands	AT1412	CD9	Preclinical	B-cell Lymphoblastic Leukemia	Monoclonal Antibody
				AT1413	CD43s	Preclinical	Acute Myeloid Leukemia	Monoclonal Antibody
16.	Alchemab Therapeutics Ltd.	2019	United Kingdom	UNDISCLOSED PIPELINE				Antibody
17.	Alderaan Biotechnology SAS	2017	France	Undisclosed	CD25	Preclinical	Cancer	Monoclonal Antibody
				Undisclosed	CD160-TM	Discovery	Solid Tumors	Monoclonal Antibody

Oncology Preclinical Drug Developers Developing Cancer Targeting Bi-Specific Antibodies

Table No. A.9

No.	Company Name	Founded Year	Country	Molecule Name	Target	Development Stage	Indication	Description
1.	ABBA Therapeutics AG	2016	Switzerland	UNDISCLOSED PIPELINE				Bispecific Antibody
2.	AbClon Inc.	2010	South Korea	AM105	EGFR / CD137	Preclinical	Colorectal Cancer	Bispecific Antibody
				AM101	HER2/ EGFR	Preclinical	Gastric Cancer	Bispecific Antibody
				AM102	HER2/IGF-1R	Preclinical	Breast Cancer	Bispecific Antibody
				AM103	PD-L1/ LAG-3	Preclinical	Colorectal Cancer	Bispecific Antibody
				AM106	PD-1/TIM-3	Preclinical	Melenoma	Bispecific Antibody
3.	Abpro Therapeutics	2008	United States	ABP 100	Her2, CD3	Preclinical	Breast Cancer	Bispecific Antibody
							Gastrointestinal Cancer	
				ABP 110	GPC3, CD3	Preclinical	Hepatocellular Carcinoma	Bispecific Antibody
				ABP 160	CD47, PD-L1	Discovery	Solid Tumors	Bispecific Antibody
				ABP 130	CD38, CD3	Discovery	Hematological Malignancies	Bispecific Antibody
				ABP 140	CEA/CD3	Discovery	Gastrointestinal Cancer	Bispecific Antibody
				ABP 150	Claudin18.2 / CD3	Discovery	Gastrointestinal Cancer	Bispecific Antibody
4.	Abzyme Therapeutics, LLC	2010	United States	UNDISCLOSED PIPELINE				Bispecific Antibody
5.	Aerpio Therapeutics Inc.	2007	United States	Undisclosed	Tie2, VEGF	Preclinical	Solid Tumor	Bispecific Antibody
6.	Amunix Operating, Inc.	2006	United States	HER-XPAT	Her2	IND	Cancer	T Cell Engager
				EGFR-XPAT	EGFR	Preclinical	Cancer	Fusion Protein (T Cell Engager)
7.	AnaptysBio, Inc.	2005	United States	UNDISCLOSED PIPELINE				Bispecific Antibody

Oncology Preclinical Drug Developers Developing Cancer Targeting Antibody Drug Conjugates

Table No. A.10

No.	Company Name	Founded Year	Country	Molecule Name	Target	Development Stage	Indication	Description
1.	AbTis Co, Ltd.	2016	South Korea	UNDISCLOSED PIPELINE				Antibody Drug Conjugate
2.	ADCendo ApS	2017	Denmark	Undisclosed	uPARAP	Preclinical	Glioblastoma	Antibody Drug Conjugate
3.	Agilvax Inc	2011	United States	xCT-ADC	SLC7A11/ xCT	Preclinical	Solid Tumors	Antibody Drug Conjugate
4.	Angiex	2015	United States	Undisclosed	TM4SF1	Preclinical	Solid Tumor	Antibody Drug Conjugate
5.	Antikor Biopharma Limited	2001	United Kingdom	ANT043	HER 2	Preclinical	Solid Tumor	Antibody Fragment Drug Conjugate
6.	Araris Biotech AG	2019	Switzerland	UNDISCLOSED PIPELINE				Antibody Drug Conjugate
7.	atb Therapeutics	2018	Belgium	UNDISCLOSED PIPELINE				Antibody Drug Conjugate
8.	Avicenna Oncology GmbH	2014	Switzerland	UNDISCLOSED PIPELINE				Antibody Drug Conjugate
9.	Beoro Therapeutics GmbH	2017	Germany	UNDISCLOSED PIPELINE				Antibody Drug Conjugate
10.	BiVictriX Therapeutics Ltd	2016	United Kingdom	BVX001	Undisclosed	Lead Optimization	Acute Myeloid Leukemia	Antibody Drug Conjugate
11.	BlinkBio Inc	2012	United States	UNDISCLOSED PIPELINE				Antibody Drug Conjugate
12.	CellmAbs S.A.	2019	Portugal	CBS103 ADC	Undisclosed	Discovery	Solid Tumors	Antibody Drug Conjugate
13.	Centrose LLC	2007	United States	EDC1	Dysadherin, NKA	Preclinical	Solid Tumors	Antibody Drug Conjugate
				EDC2	NKA, CD147	Preclinical	Head & Neck Cancer	Antibody Drug Conjugate
				EDC3	NKA, CD98	Preclinical	Cancer	Antibody Drug Conjugate
				EDC5	CD44	Preclinical	Skin Cancer	Antibody Drug Conjugate
				EDC8	CD38	Preclinical	Cancer	Antibody Drug Conjugate

Oncology Preclinical Drug Developers Developing Cancer Vaccines

Table No. A.11

No.	Company Name	Founded Year	Country	Molecule Name	Target	Development Stage	Indication	Description
1.	2A Pharma AB	2016	Sweden	2AP02 / AAVLP-HER2 / Neu	-	Preclinical	Breast Cancer	Vaccine
				2AP07 / AAVLP-HNC	-	Discovery	Head and Neck Cancer	Vaccine
2.	Abera Bioscience AB	2012	Sweden	Ab04	-	Discovery	Cancer	Vaccine
3.	Adze Biotechnology Inc	2019	United States	ADZ1.17.FA.4	4-1BB	Discovery	Solid Tumor	Vaccine
4.	Agilvax Inc	2011	United States	AX09	xCT	IND	Triple Negetive Breast Cancer	Vaccine
5.	Akshaya Bio, Inc.	2010	Canada	Chimigen Cancer Vaccine	-	Discovery	Solid Tumors	Vaccine
6.	Altevax SAS	2016	France	ALT-Mx	-	Preclinical	Cancer	Vaccine
7.	Anixa Biosciences, Inc.	1982	United States	Undisclosed	-	Preclinical	Triple Negative Breast Cancer	Vaccine
8.	Annias Immuno-therapeutics Inc.	2012	United States	PEP-CMV	CMV antigens	Preclinical	Glioblastoma multiformes	Vaccine
9.	APCure SAS	2012	France	LTvax-APC001	-	Preclinical	MCPyV-associated cancers	Vaccine
				APC002	-	Discovery	Prostate Cancer	Vaccine
				APC004	-	Discovery	Renal Cancer	Vaccine
10.	AptaBio Therapeutics, Inc.	2009	South Korea	APV-224	NOX	Discovery	Liver Cancer	Peptide Vaccine
							Gastric Cancer	
11.	Avalia Immuno-therapies Ltd.	2015	New Zealand	AVA1156	-	Preclinical	HPV-associated Cancers	Vaccine
				AVA1200	-	Preclinical	Solid Tumors	Vaccine
12.	Avidea Technologies, Inc.	2013	United States	SNP-7/8a	-	IND	Solid Tumor	Vaccine
13.	BioVaxys LLC	2018	United States	BVX-0918A	-	Preclinical	Ovarian Cancer	Vaccine
14.	CanVirex AG	2017	Switzerland	CanVirex01	-	Preclinical	Cancer	Vaccine
				CanVirex02	-	Discovery	Cancer	Vaccine
15.	CimCure Therapeutics BV	2015	Nether-lands	UNDISCLOSED PIPELINE				Vaccine

Section B

1001 Preclinical Stage Oncology Drug Developers

PROFILES

1st Biotherapeutics, Inc.

240 Pangyoyeok-ro, Sampyeong-dong, Bundang-gu, Seongnam-si, Gyeonggi-do, South Korea

www.1stbio.com
info@1stbio.com
+82 31-8023-5332

Founded: 2016
Employee: 11-50
Ownership: Private

Highlights

- 1st Biotherapeutics is a clinical stage biopharmaceutical company developing CNS penetrating kinase inhibitor, targeting neuro-degenerative diseases, oncology and rare diseases.
- 1st Biotherapeutics recently launched TIO Biotherapeutics, Inc.; its wholly owned subsidary to discover and develop molecules in ImmunoOncology domain.
- In Jan 2019, 1st Biotherapeutics and twoXAR Inc., an artificial intelligence (AI)-driven biopharma company, signed collaboration to jointly discover and develop molecules targeting glioblastoma. Under the terms, twoXAR, to identify three drug candidates against glioblastoma, using its proprietary AI technology, while 1st Biotherapeutics will optimise candidates for further development. Financial details remains undisclosed.
- In Oct 2017, 1st Biotherapeutics and Neuraly Inc., collaborate to co-develop brain penetrating c-Abl inhibitors with improved safety profile for Parkinson's disease. Under the terms, 1st Bio to perform the preclinical development, and Neuraly to test the drug candidates in various preclinical models of the disease. 1ST Biotherapeutics will retain all intellectual property generated in the collaboration. Financial terms remains undisclosed.
- In 2016, 1st Biotherapeutics raised 8 Mn won in Series A funding from undisclosed investors.

Oncology Pipeline

Name	Target	Phase	Indication	Molecule Type
1ST-201	Undisclosed	Preclinical	Solid Tumors	Small Molecule
1ST-205	Undisclosed	Discovery	Glioblastoma	Small Molecule

- 1ST-201 targets a crucial pathway in immuno-oncology and aims to reverse the active immune suppression and stimulate functionality of effector immune cells and dendritic cells in tumor microenvironment.
- 1ST-205 is in development in collaboration with twoXar, against Glioblastoma, utilizing its AI driven drug discovery research platform.

Corporate Profile

Jamie Eun, *Chief Executive Officer*

LinkedIn profile

2A Pharma AB

Södergatan 3
211 34 Malmö,
Sweden

www.2apharma.com
info@2apharma.com
+45 2539 4137

Founded: 2016
Employee: 11-50
Ownership: Private

Highlights

- ★ 2A Pharma is a biopharmaceutical company focused on discovering, developing and commercialising novel, cost effective vaccines using adeno-associated virus like particles (AAVLPs) technology.
- ★ 2A Pharma was founded by Prof. Søren Nielsen from Aalborg University and John Nieland, former Head of Immunology at Medigene AG to replace the peptides on surface of a modified adeno virus with antigens to induce and enhance the specific antibody immune response.
- ★ 2A Pharma lead molecule, 2AP01 is a human papillomavirus (HPV) vaccine, is in Ph I clinical trials.
- ★ In Dec 2016, 2A Pharma acquired an exclusive, worldwide license for the development and commercialization of Medigene AG, preclinical stage adeno-associated virus-like particles (AAVLPs) technology. Under the terms, Medigene to receive clinical, regulatory and commercial milestone payments in addition to royalties on net sales of future AAVLP products.
- ★ In Sep 2018, 2A Pharma was granted SEK 3M Eurostars funding for 2AP07, a project to develop a therapeutic head and neck cancer vaccine in collaboration with The Danish Technological Institute and Danish biotech company DNA Sense.
- ⋆ In June 2018, 2A Pharma raised SEK 20 Mn (USD 2.2M) from existing and new investors. Earlier in Jan 2017, it raised SEK 27Mn, led by Jensen Corporate Finance, Malmö and S.A.B. AB.

Oncology Pipeline

Name	Target	Phase	Indication	Molecule Type
2AP02 / AAVLP-HER2/Neu	-	Preclinical	Breast Cancer	Vaccine
2AP07 / AAVLP-HNC		Discovery	Head and Neck Cancer	Vaccine

⋆ AAVLP-HER2/Neu peptide vaccine in lab tests have shown to induce antibodies specific to human HER2.

Corporate Profile

Preben Bruun-Nyzell, *Chief Executive Officer* *pbn@2apharma.com* **Linked** profile
John Nieland, *Chief Operating Officer* *jdn@2apharma.com* **Linked** profile

A2A Pharmaceuticals, Inc.

BioLabs New York
180 Varick Street, New York, NY 10014,
United States

www.a2apharma.com
info@atoms2applications.com
+1 914 841 8818

Founded: 2017
Employee: 11-50
Ownership: Private

Highlights

- A2A Pharmaceuticals is a computational fragment-based drug discovery company focused on the development of novel drugs for treatment of antibiotic resistance bacterial infections, tuberculosis and cancer using its proprietary SCULPT platform.
- A2A's proprietary therapeutic design methodology - SCULPT™ (Systematic Combinatorial Unification of fragments into Libraries against a Pharmacological Target), enables the design of novel ligands specifically to match the unique topological features of disease targets and has integrated artificial intelligence/deep learning tools within the platform.
- In Jan 2020, A2A signed an agreement to design and co-develop oncology drug candidates with Daewoong Pharmaceutical, using its proprietary AI-enabled drug discovery platform SCULPT™. Under the terms, A2A will use its computational drug discovery platform to design new compound structures, which will be synthesized and evaluated by Daewoong. A2A will receive upfront and preclinical milestones for each discovery target, and could receive clinical and commercialization milestones and royalties.
- In Feb 2018, A2A Pharmaceuticals signed a 50/50 strategic partnership with Biomea Healthcare named Biomea Fusion to advance several A2A novel drug candidates into the clinic over the next 18 - 24 months.
- In Feb 2018, A2A Pharmaceuticals raised seed financing of over $3 Mn from CPS Capital Group Pty Ltd ("CPS Capital").
- A2A holds collaborations with Pharmacyclics, Novartis, J&J, P&G and Insilico Medicine to advance drug candidates toward IND.

Oncology Pipeline

Name	Target	Phase	Indication	Molecule Type
AO-001	MLL-MENIN	Preclinical	Leukaemia	Small Molecule
AO-003	YAP-TEAD	Discovery	Solid Tumors	Small Molecule

- AO-001 is a small molecule shows selectivity and potency in targeting menin-MLL interaction and is being developed in partnership with Biomea healthcare.

Corporate Profile

Sotirios G. Stergiopoulos, Founder & *Chief Executive Officer* — *sotirios@a2apharma.net* — **Linked** in profile

Chaemin Lim, *Chief Scientific Officer* — **Linked** in profile

Abalos Therapeutics Gmbh

Alfredstraße 81,
45130 Essen,
Germany

www.abalos-tx.com
info@abalos-tx.com
+49 201 565 787

Founded: 2019
Employee: 1-10
Ownership: Private

Highlights

- Abalos Therapeutics is an early stage immuno-oncology start-up developing oncolytic therapeutics based on a specific arenavirus strain that preferentially infects and proliferates in cancer cells generating a strong anti-tumor immune response.
- Abalos Therapeutics was founded to translate the innovative research of immunology and virology experts Karl Lang and Philipp Lang into novel anti-cancer therapies. They identified a specific set of mammarenaviruses that preferentially infect and proliferate in cancer cells, which results in a very strong and targeted immune response against the cancer.
- In Oct 2019, Abalos Therapeutics raised EUR 12 Mn in Series A financing round co-led by Boehringer Ingelheim Venture Fund (BIVF) and Gruenderfonds Ruhr, with participation from NRW.BANK and High-Tech Gruenderfonds (HTGF).

Corporate Profile

Joerg Vollmer, *Co-founder & Chief Scientific Officer* *jhvollmer@googlemail.com* **Linked** profile
Marcus Kostka, *Co-founder & Chief Executive Officer* *kostka@abalos-tx.com* **Linked** profile

ABBA Therapeutics AG

BASEL INKUBATOR
Hochbergerstr. 60c
CH 4057 Basel, Switzerland

www.abba-therapeutics.com
info@abba-therapeutics.com
+41 61 6382370

Founded: 2016
Employee: 1-10
Ownership: Private

Highlights

- ABBA Therapeutics AG (The University of Basel spinoff) is committed to novel antibody drug discovery that overcomes clinical resistance to targeted cancer therapies.
- In Mar 2016, ABBA Therapeutics entered into worldwide license agreement with Ligand Pharmaceuticals (NASDAQ: LGND), to utilize Ligand's OmniRat®, OmniMouse® and OmniFlic® platforms to generate fully human mono- and bispecific antibodies.
- The Company's drug pipeline includes ABBA19 for lung cancer, health and neck and sarcoma in the preclinical validation stage; and other undisclosed compounds for treating solid tumors under the developmental stage.
- In Aug 2018, ABBA Therapeutics successfully closed "Seed B" financing round with European investors to accelerate the preclinical efficacy study with cutting-edge animal models and advance two lead candidates for clinical efficacy study.

Corporate Profile

Reto Kohler, *Founder* *reto.kohler@unibas.ch* **Linked** profile
Peter Cron, *CoFounder* **Linked** profile