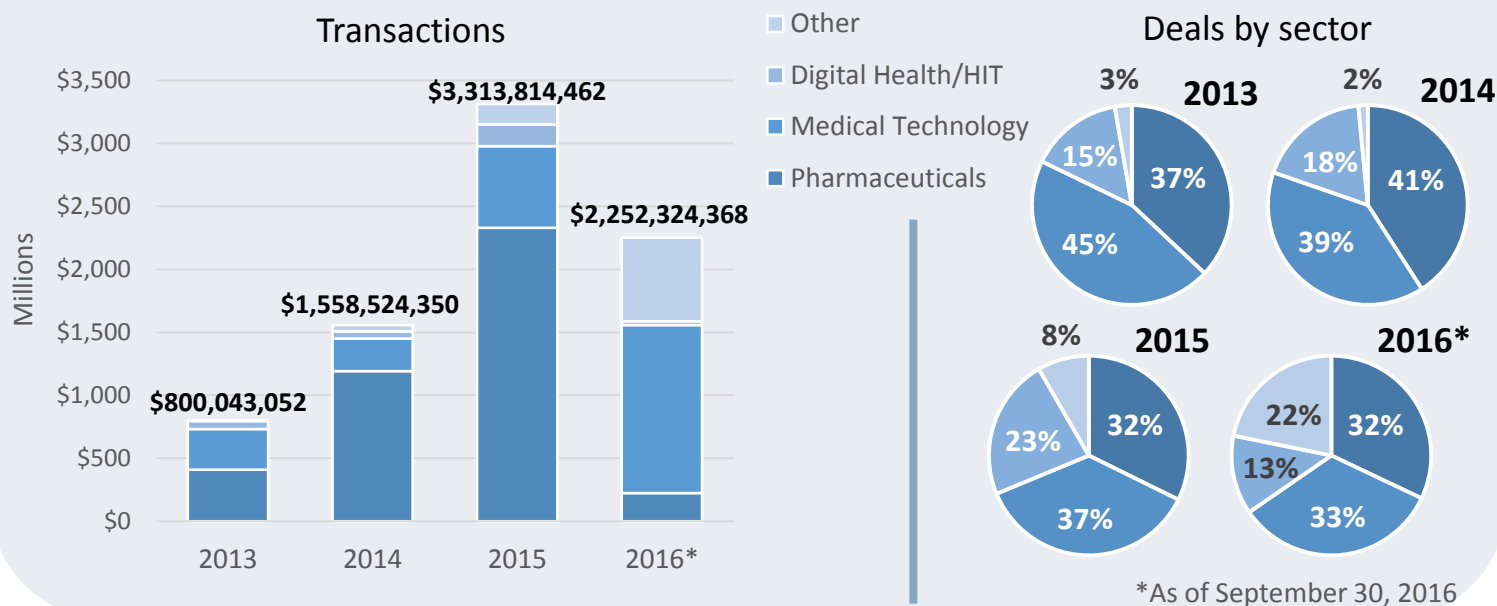


A monthly report summarizing the Life Science transactions and trends in Washington State.

Washington State Transactions

Washington State Transactions by Industry



September 2016

September 2016 Deal highlights:

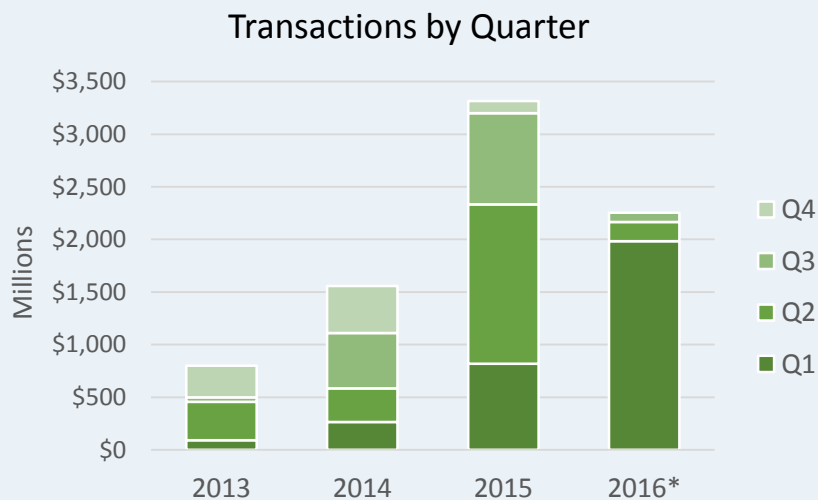
- **Sound Pharmaceuticals** \$3.8M (Debt)
- **Cocrystal Discovery** \$4M (Equity)
- **Ario** \$1M (Equity)
- **Verda Bio** \$545,000 (Equity)
- **PotaVida** \$275,000 (Equity)

September total: \$9,663,201
2016 running total (Jan-Sep 30th): \$2,252,324,368

Transactions by Quarter

Life Science Transactions by Quarter: 2013 - 2016

At the end of Q3 2016, life science transactions totaled over \$2.2 billion.



Highlights from 3rd quarter of 2016

- **Magnolia Medical Technologies** raised \$13 million (Equity).
- **Just Biotherapeutics** raised \$14 million (Series A).
- **98point6** raised \$11 million (Equity).
- **Benaroya Research Institute** received an \$8M grant from NIH to lead a new asthma and allergic diseases cooperative research center.

*As of September 30, 2016

This report is prepared by Yesenia Green, PhD, yesenia@lifesciencewa.org.

**The data in this report is compiled from publicly disclosed information and is not independently verified by Life Science Washington.

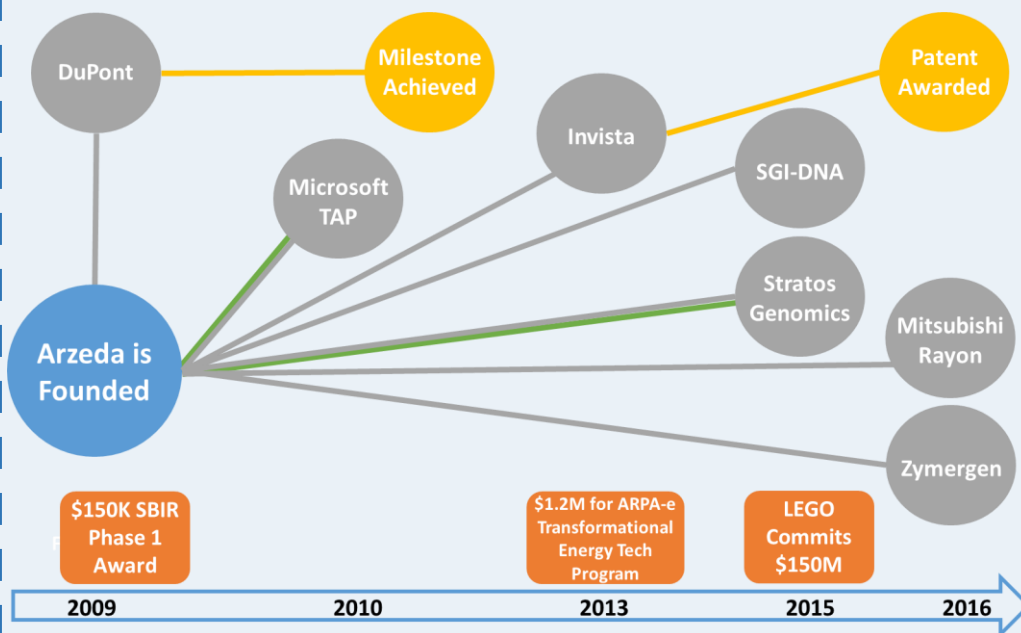
Company Snapshots – Arzeda & PhaseRx

Prepared by Kayla Young, PhD

Over the next several months, Life Science Washington will be profiling different companies that have spun-out from various institutions across Washington state. This month we are highlighting how Arzeda, a spinout from University of Washington, established a multitude of partnerships and collaborations in order to drive their technologies forward. We are also highlighting PhaseRx, a Fred Hutch spin-out, and their funding rounds from Series A to IPO.

Arzeda builds value through collaboration

Arzeda is applying its protein design technology to enable new crop traits to improve crop yields and farming efficiency.

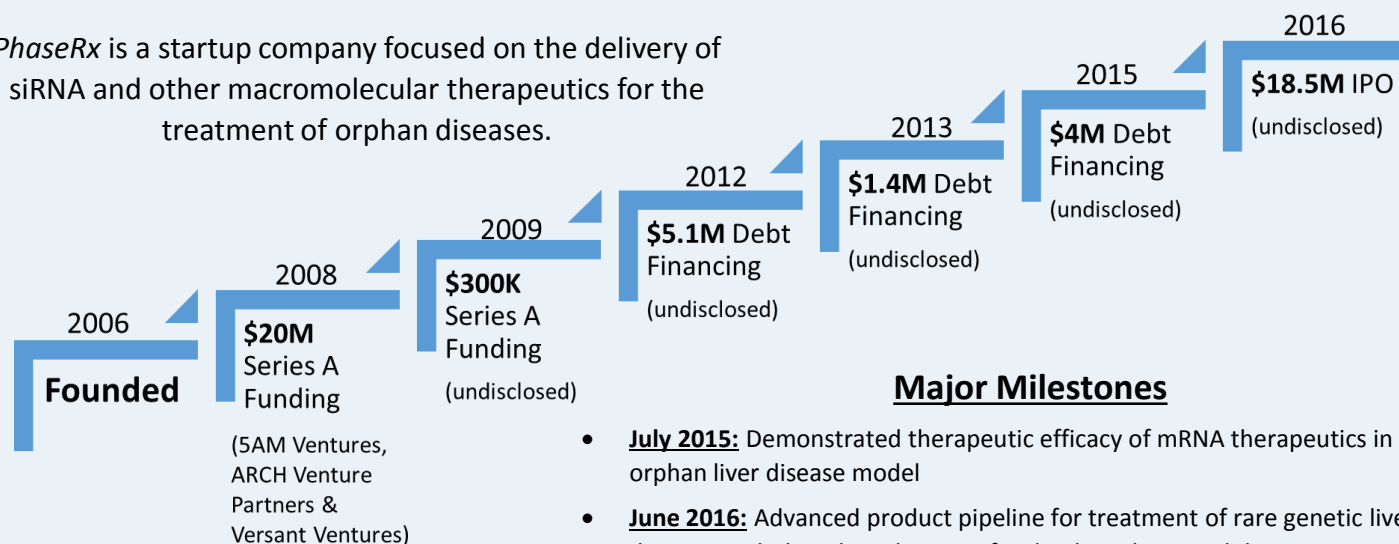


Collaboration Details

- **Dupont:** develop improved crops to increase productivity
 - **Milestone:** novel enzyme shows activity toward a trait in corn and soybean
- **Microsoft TAP:** adapt Arzeda computing to Microsoft Cloud Architecture
- **Invista:** develop bio-derived raw materials
 - **Patent:** bio-derived raw materials
- **SGI-DNA:** develop *in silico* DNA Tech to improve enzyme design pipeline
- **Stratos:** develop novel enzymes
- **Mitsubishi Rayon:** develop new processes for industrial chemical production
- **Zymergen:** develop strains and processes to manufacture novel high utility molecules and materials

PhaseRx Funding Rounds from Series A to IPO

PhaseRx is a startup company focused on the delivery of siRNA and other macromolecular therapeutics for the treatment of orphan diseases.



Major Milestones

- **July 2015:** Demonstrated therapeutic efficacy of mRNA therapeutics in an orphan liver disease model
- **June 2016:** Advanced product pipeline for treatment of rare genetic liver diseases including the selection of its lead product candidate, PRX-OTC, and positive proof-of-concept data for a second product candidate, PRX-ASL

This report is prepared by Yesenia Green, PhD, yesenia@lifesciencewa.org.

**The data in this report is compiled from publicly disclosed information and is not independently verified by Life Science Washington.

Washington-based Life Science Transactions 2016

Date	Company	Type	Amount	Date	Company	Type	Amount
01/11/16	Spiral Genetics	Unknown	\$50,000	06/02/16	Mirabilis Medica	Debt	\$2,232,833
01/12/16	Blaze Bioscience	Debt	\$991,000	06/09/16	Ave Maria Biotechnology	Equity	\$100,000
01/14/16	Stemgenics	Equity	\$930,000	06/09/16	Cadence Biomedical	Debt	\$80,000
01/20/16	Vicis	Seed	\$8,000,000	06/13/16	Alpine Immune Sciences	Equity	\$48,000,000
01/25/16	Clario Medical Imaging	Equity	\$185,000	06/20/16	Kineta	Debt	\$1,752,688
02/02/16	Oricula Therapeutics	Grant	\$2,060,000	06/22/16	Marina Biotech	Debt	\$300,000
02/02/16	ID Genomics	Equity	\$50,000	06/24/16	Catacore Corp	Equity	\$30,000
02/11/16	M3 Biotechnology	Equity	\$10,000,000	06/24/16	TwinStrand Biosciences	Debt	\$1,938,964
02/11/16	Spiral Genetics	Unknown	\$50,000	07/05/16	Revalerio Corp	Equity	\$13,999,912
02/16/16	Physio-Control	Acquisition	\$1,280,000,000	07/14/16	Magnolia Medical Technologies	Series B	\$13,757,109
02/16/16	KPI Therapeutics	Debt	\$50,500	07/19/16	Joylux	Equity	\$2,000,000
02/17/16	Glycostasis	Acquisition	undisclosed	07/26/16	Just Biotherapeutics	Series A	\$14,000,000
02/23/16	Cytodyn	Equity	\$30,574,665	08/04/16	98point6	Equity	\$11,000,000
02/24/16	Ave Maria Biotechnology	Equity	\$40,000	08/05/16	Mirabilis Medica	Debt	\$5,000,000
02/29/16	VitalWare	Series A	undisclosed	08/09/16	CSATS	Equity	\$3,283,516
03/03/16	LabConnect	Venture Equity	\$4,000,000	08/09/16	SpringStar	Grant	\$1,500,000
03/11/16	Allen Institute for Brain Science	Contract	\$18,700,000	08/10/16	Ave Maria Biotechnology	Equity	\$100,000
03/16/16	Ave Maria Biotechnology	Equity	\$350,000	08/17/16	Kineta IO, LLC	Equity	\$238,422
03/17/16	Act X	Unknown	\$308,810	08/17/16	Kineta One, LLC	Debt	\$125,000
03/22/16	Seattle Children's Research Institute	Grant	\$1,000,000	08/17/16	Vie Diagnostics	Grant	\$225,000
03/22/16	Breast Microseed	Debt	\$100,000	08/19/16	Nexgenia	Equity	\$1,859,887
03/23/16	Frazier Healthcare Partners	Fund	\$525,000,000	08/23/16	Benaroya Research Institute	Grant	\$8,000,000
03/23/16	University of Washington	Grant	\$250,000	08/24/16	Briotech	Equity	\$250,000
03/24/16	The Paul G. Allen Frontiers Group	Fund	\$100,000,000	08/29/16	Impel Neuropharma	Debt	\$1,090,000
04/06/16	Cyrus Biotechnology	Debt	\$535,000	08/29/16	Navisonics	Debt	\$335,000
04/06/16	2Morrow	Debt	\$325,000	08/30/16	KinDex Pharmaceuticals	Debt	\$327,274
04/07/16	Medstreaming LLC	Equity	\$12,200,000	09/16/16	Sound Pharmaceuticals	Debt	\$3,800,000
04/07/16	Prevenio, Inc	Debt	\$675,000	09/16/16	Cocrystal Discovery	Equity	\$4,008,201
04/08/16	Medstreaming LLC	Equity	\$2,500,000	09/26/16	Ario	Equity	\$1,035,000
04/12/16	Silverback Therapeutics	Equity	\$10,000,000	09/28/16	Verda Bio	Equity	\$545,000
04/14/16	Vicis	Series A	\$4,000,000	09/29/16	PotaVida	Equity	\$275,000
04/18/16	Juno Therapeutics	Partnership	\$50,000,000	2016 Running Total as of September 30, 2016		\$2,252,324,368	
04/23/16	ID Genomics	Grant	\$3,000,000				
04/27/16	Cardiac Insight	Debt	\$2,505,524				
04/29/16	Ave Maria Biotechnology	Equity	\$2,200,000				
05/05/16	Kineta	Award	\$7,200,000				
05/10/16	Aqueduct Critical Care	Equity	\$3,067,177				
05/10/16	Spiral Genetics	Unknown	\$50,000				
05/11/16	Cytodyn	Equity	\$4,301,500				
05/11/16	Mental Health Data Services	Equity	\$333,333				
05/13/16	Ave Maria Biotechnology	Equity	\$50,000				
05/17/16	PhaseRx	IPO	\$18,500,000				
05/20/16	Haverhill Genetics	Debt	\$125,000				
05/24/16	Vicis	Equity	\$6,000,000				
05/25/16	Kineta Three, LLC	Equity	\$760,778				
05/26/16	Litesprite	Debt	\$50,000				
05/31/16	Kineta Two, LLC	Equity	\$67,275				

Don't see a transaction listed?

Contact Yesenia Green at

yesenia@lifesciencewa.org

Check out the past issues of the Washington Life Science Report at:

<http://www.lifesciencewa.org/?page=WAINvestment>

Washington-based Life Science Transactions 2015

Date	Company	Type	Amount	Date	Company	Type	Amount
01/22/15	Alder Biopharmaceuticals	Second public offering	\$203,600,000	06/29/15	Nexgenia	Equity	\$1,617,582
01/22/15	Adaptive Biotechnologies	Series E	\$93,750,000	06/30/15	Vera Whole Health, Inc	Debt	\$2,000,000
01/28/15	Vesiflo	Convertible note	\$650,000	07/13/15	Arivale	Series B	\$36,000,000
01/30/15	MalarVx, Inc	Equity	\$110,000	07/14/15	Cytodyn	Equity	\$1,972,500
02/05/15	Alpine Immune Sciences	Seed	\$1,300,000	07/14/15	RF Surgical Systems	Acquisition	\$235,000,000
02/05/15	M3 Biotechnology	Equity	\$150,000	07/21/15	Deep Domain	Equity	\$260,507
02/10/15	Valant Medical Solutions	Venture Equity	\$285,350	07/31/15	Qliance Medical Management	Debt	\$2,676,730
02/13/15	Stasys Medical	Series A	\$160,000	08/07/15	Precision Image Analysis	Equity	\$60,348
02/18/15	StratoScientific	Venture Equity	\$550,000	08/11/15	Vicis	Venture Equity	\$1,500,000
02/23/15	Dendreon	Acquisition	\$495,000,000	08/12/15	Marina Biotech	Equity	\$1,100,000
03/06/15	Cerevast Therapeutics	Series C	\$1,375,000	08/13/15	Bloomingtondale Memory Care	Equity	\$3,373,525
03/09/15	KinDex Pharmaceuticals	Series A	\$500,000	08/17/15	OtoNexus Medical Technologies	Debt	\$754,990
03/11/15	Cardiac Dimensions	Venture Equity	\$15,200,000	08/18/15	Immusoft	Debt	\$375,000
03/15/15	Medical Mirror Systems	Equity	\$250,000	08/19/15	Sound Pharmaceuticals	Debt	\$300,000
03/19/15	Nortis	Venture Equity	\$408,845	08/21/15	Navigating Cancer	Venture Equity	\$6,605,573
03/20/15	Healthentic	Series C	\$3,750,000	08/28/15	Aqueduct Critical Care	Equity	\$3,712,304
03/20/15	StratoScientific	Venture Equity	\$150,000	09/02/15	Kona Medical	Debt	\$10,000,300
03/25/15	Cadence Biomedical	Equity	\$959,578	09/14/15	Seattle Genetics	Second public offering	\$525,000,000
04/08/15	NuvoMed	Equity	\$390,637	09/14/15	Impel Neuropharma	Equity	\$1,257,927
04/10/15	Cardeas Pharma	Series B	\$3,500,000	09/18/15	Impel Neuropharma	Equity	\$4,000,000
04/13/15	Carena	Debt	\$500,000	09/21/15	Cardiac Insight	Undisclosed	\$3,500,000
04/17/15	X2 Biosystems	Venture Equity	\$350,000	09/22/15	Just Biotherapeutics	Series A	\$15,000,000
04/23/15	Deep Domain	Venture Equity	\$30,000	09/24/15	VDA Pharma	Debt	\$55,000
04/24/15	Mpirica Health	Series A	\$1,600,000	09/24/15	Joylux	Seed	\$3,000,000
05/01/15	Mirabilis Medica	Debt	\$2,920,000	09/30/15	Accelerator Corporation	Venture Equity	\$11,700,000
05/06/15	Adaptive Biotechnologies	Series F	\$195,000,000	10/02/15	Spiral Genetics	Debt	\$200,000
05/06/15	Theraclone Sciences	Venture Equity	\$3,080,000	10/04/15	Cytodyn	Equity	\$2,693,800
05/06/15	Cyrus Biotechnology	Debt	\$850,000	10/15/15	Global Health Vaccine Center of Innovation	Partnership	\$9,500,000
05/06/15	InDemand Interpreting	Venture Equity	\$4,000,000	10/19/15	Novuson Surgical	Equity	\$500,000
05/14/15	Cytodyn	Debt	\$3,281,050	10/27/15	Alpine Immune Sciences	Partnership	\$5,000,000
05/18/15	Tissue Regeneration Systems	Debt	\$2,093,182	10/27/15	Park Boulevard Memory Care, LLC	Equity	\$3,524,925
05/19/15	KPI Therapeutics	Equity	\$27,000	10/30/15	Metheor Therapeutics	Equity	\$90,000
05/21/15	Ventec Life Systems	Venture Equity	\$8,192,480	11/04/15	Clarity Health	Acquisition	Undisclosed
05/27/15	BioViva USA	Equity	\$250,000	11/11/15	Aminex Therapeutics	Series A	\$4,000,000
06/02/15	C-SATS	Venture Equity	\$2,500,000	11/11/15	Mpirica Health	Venture Equity	\$400,000
06/03/15	Magnolia Medical Technologies	Venture Equity	\$6,235,322	11/13/15	Qliance Medical Management	Equity	\$450,000
06/04/15	Carena	Series B	\$13,300,000	11/16/15	Implicit Bioscience	Equity	\$50,800
06/05/15	Valant Medical Solutions	Venture Equity	\$3,000,000	11/20/15	M3 Biotechnology	Equity	\$3,500,000
06/11/15	Glycostasis	Equity	\$149,998	11/25/15	OtoNexus Medical Technologies	Debt	\$1,403,080
06/16/15	Altius Institute for Biomedical Sciences	Partnership	\$95,000,000	12/01/15	Universal Cells	Partnership	\$5,500,000
06/16/15	Remote Medical International	Partnership	\$95,000,000	12/04/15	Breast Microseed	Debt	\$500,000
06/17/15	Stratos Genomics	Series B	\$19,999,976	12/16/15	Matrix Genetics	Debt	\$1,600,000
06/20/15	Global Innovation Exchange	Partnership	\$45,000,000	12/23/15	Switch Healthcare	Equity	\$300,000
06/20/15	Vicis	Seed	\$1,600,000	12/24/15	Nohla Therapeutics	Equity	\$21,000,000
06/22/15	Qliance Medical Management	Debt	\$520,753	12/24/15	Nativis	Equity	\$250,000
06/24/15	Nativis	Venture Equity	\$725,000	12/29/15	PhaseRx	Debt	\$4,000,000
06/24/15	Cadence Biomedical	Series B	\$1,200,000				
06/25/15	Blaze Bioscience	Equity	\$85,400				
06/28/15	Juno Therapeutics	Partnership	\$1,000,000,000				
				2015 Total			\$3,263,814,462