



ArterezTM

Diagnostics and Therapies

Getting to the heart of the matter...



About Us



Who We Are

- Michigan bio-technologies group with a shared vision and passion to develop predictive, curative and ultimately preventive solutions for vascular disease beginning with cardiovascular disease (CVD).
- Founded by Dr. J.B. Tunac who discovered the multiple upstream etiology of CVD can be identified, characterized, cured and ultimately prevented and that the same etiology is common among many diseases.

What we're developing

- Novel oral therapy and companion diagnostic panel targeting the multiple upstream etiology of CVD.



Dr. Joe Tunac – Inventor, Chairman and President

Education

- U of Philippines – BS, Plant Pathology
- So. Dakota State – Masters, Plant Pathology
- Penn State – Microbiology Ph.D. program
- Rutgers, Waksman Institute – Ph.D.
 - World center for antibiotic research
 - 1st student to develop drug: Hydroheptin



Merck – Dir Research

- Avermectin (Ivomec: 2015 Nobel Prize)
- Cefoxitin (*Mefoxin*)
- Primaxin (*Imipenem*)

Parke-Davis/W-Lambert – Dir Antibiotics & Chemo

- Pentostatin (*Nipent*)
- Daunorubicin (*Cerubidine*)
- Vidarabine (*Vira-A*)

Fermical, Ferndale, MI

- Designed Bioreactor
- Licensed Tunair Labware (flasks)
 - Sold worldwide
- Anti-cancer drug (Mitomycin)
 - Licensed to ASTX / Sold to Otsuka - \$886M

JJ Pharma, San Ramon, CA

- Anti-arthritis drugs

Acea Biotech, San Francisco, CA

- Anti-fungal (Corifungin)
 - Designated orphan drug by FDA

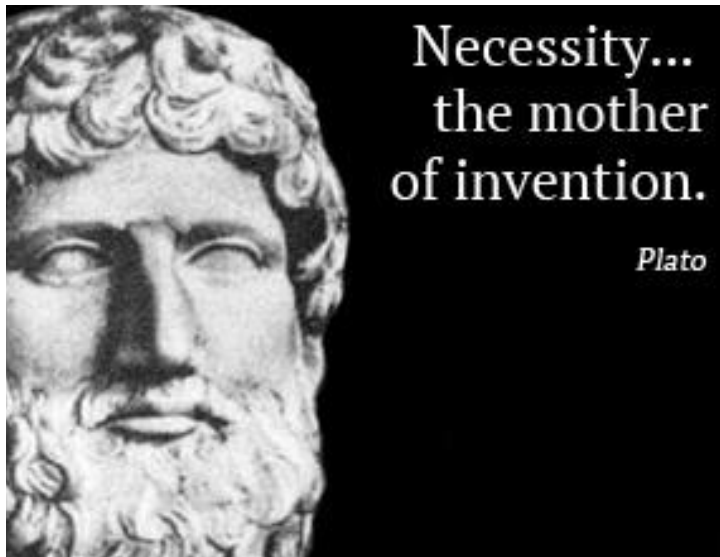
Farmaceutix, Metamora, MI (2012-2018)

- Anti-Embolic™ compounds
- Diagnostic biomarkers



Historical Perspective

To know where we're going, we must understand where we've been



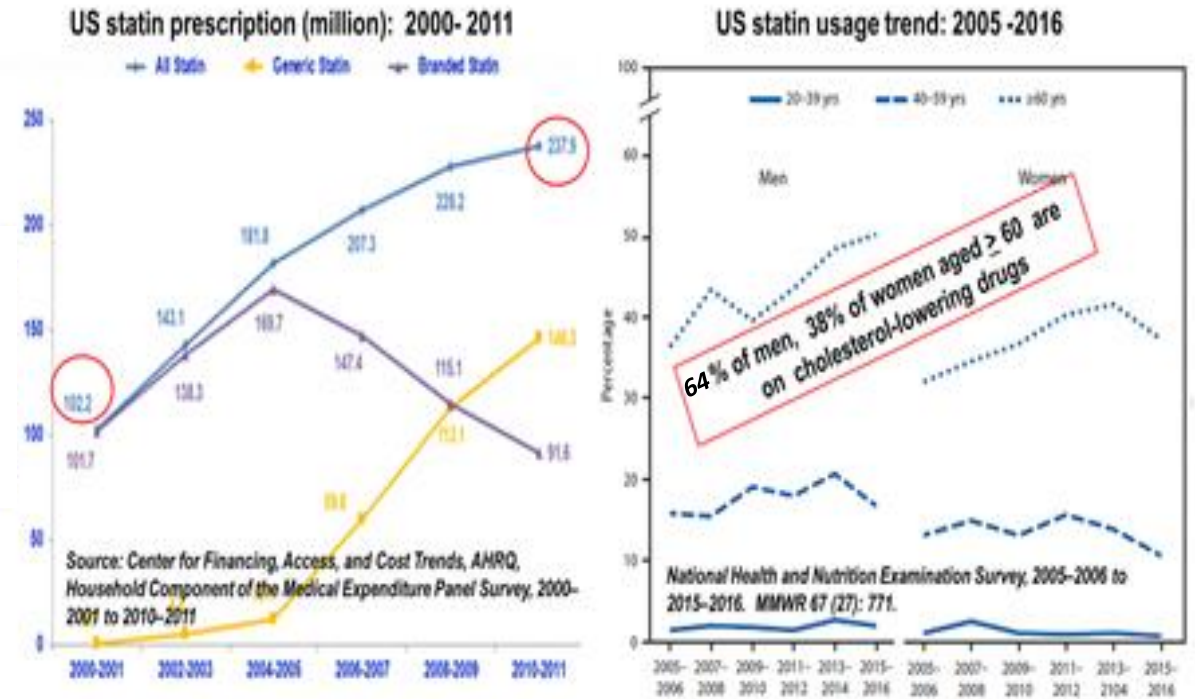
- The problem: CVD is the leading disease killer worldwide.
- Cholesterol reduction and palliative treatments remain standard of care.
- Dr. Tunac studied vascular disease and war on cholesterol.
- Conclusion: cholesterol is essential for good health.
- The solution: breakthrough discovery with profound global implications.
- Demonstrated potential to transform standard of care.



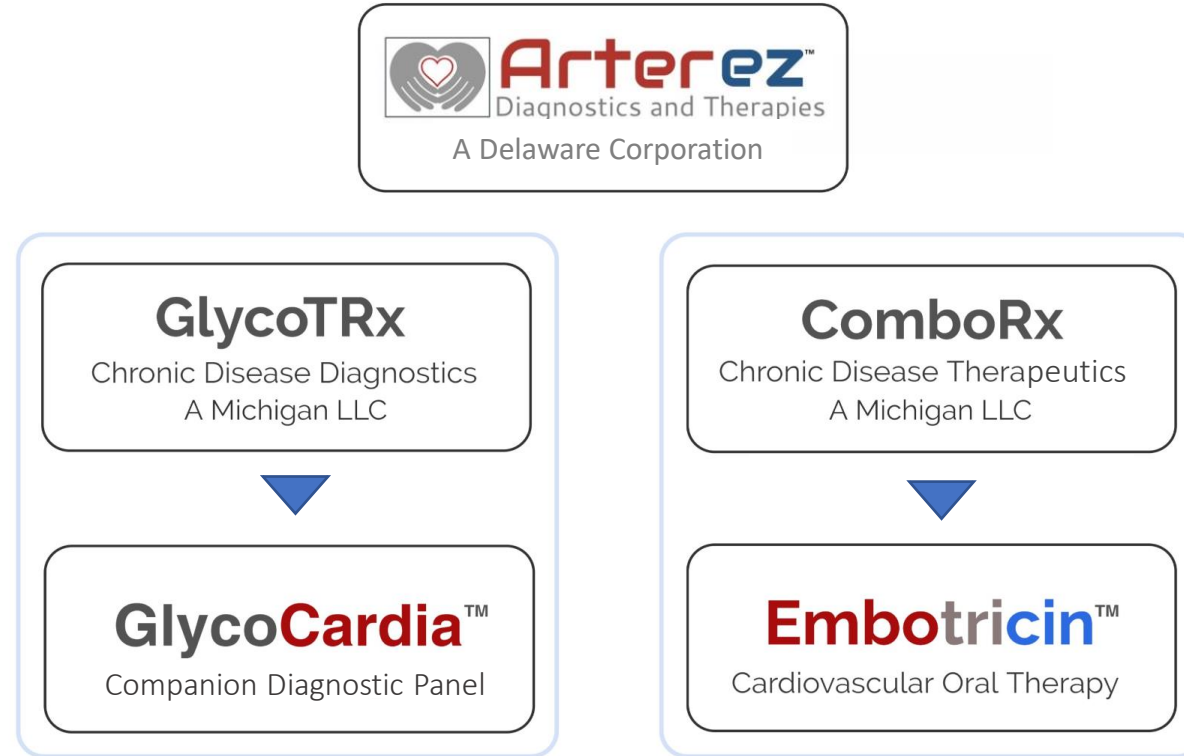
Market Snapshot – where are we today?



Statins are the most widely prescribed drug and CVD continues to rise



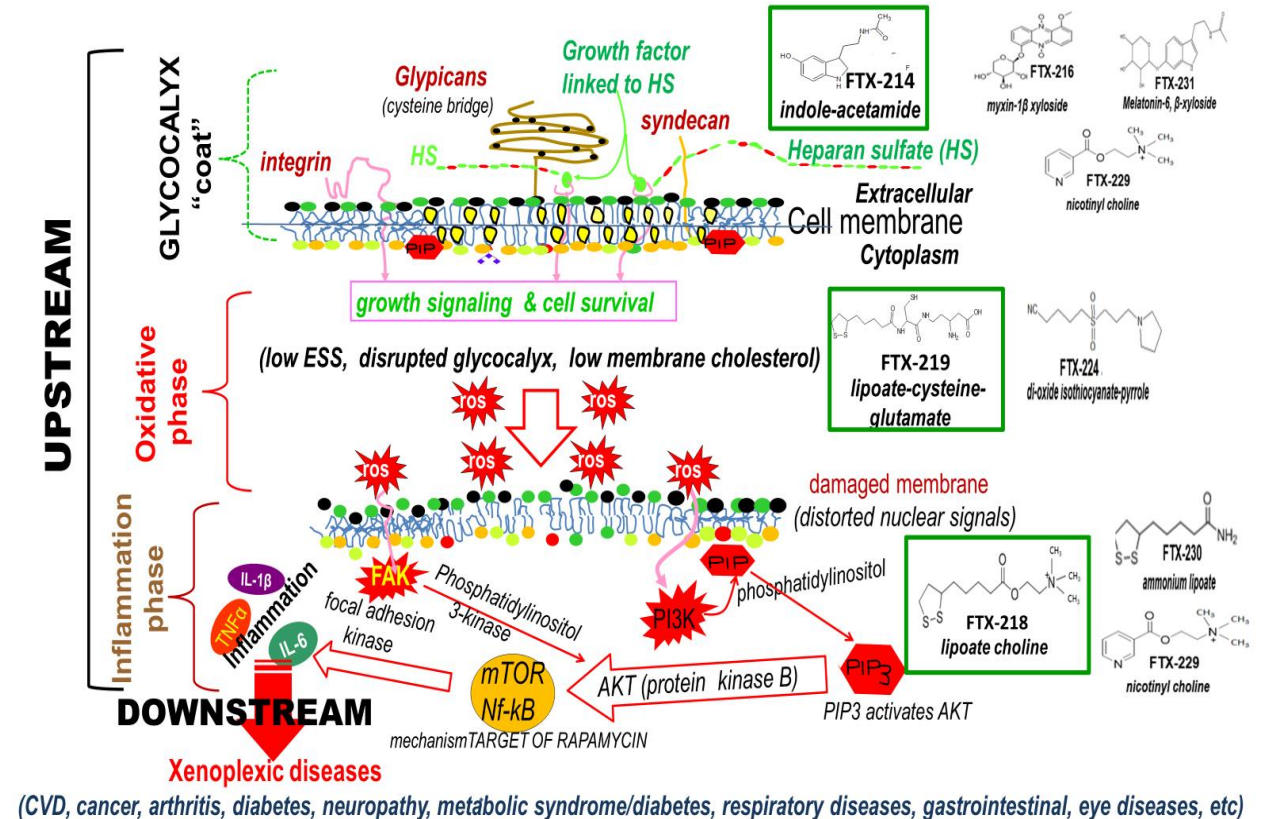
- By 2030, 23,600,000 are predicted to die from CVD. (*More than 800,000 Americans per year*)
- 1 person dies every 33 seconds from heart disease.
- CVD remains the greatest health risk and cost worldwide.
- US costs alone due to CVD will rise to an est. \$1.5 trillion by 2030.
- Current therapies are palliative at best.





Arterez' Thesis – How Disease Starts

- 90% of diseases caused by extraneous factors (lifestyle, environment, pollutants, drug intake and interaction).
- Diseases are of multi-factor etiology composed of upstream and downstream phases.
- Upstream phase is physical breach of cell's protective shield by chemical and biological pollutants, resulting in sequela of cell damage manifested downstream as symptoms or diseases.
- At a molecular level, breach is due to oxidation (electron stealing) of glycocalyx components by pollutants, which generates debris (antigens) that activates the immune system (cytokines) causing inflammation and further generates oxidative reactive oxygen species (ROS).



- If this cycle isn't mitigated, its expressed in symptoms we call diseases. For example, a breach in the endothelial glycocalyx results in a family of CVD diseases while a breach in the epithelial glycocalyx into cancer, arthritis, diabetes, neuropathy, etc.
- The 'One-drug-one-target' paradigm – statins, PCSK9 inhibitors and blockers are all palliative.



1st therapy targeting the root cause of disease

- 9 novel small molecules tested in 30 combinations leading to first oral therapy, Embotricin™
- Prevented and cured plaques, confirmed by histopathology, MRI and biomarkers
- Proved curative of sars-cov 1 in a pollutant and optimization study (published)
- 3 compounds (fixed dose combo) act synergistically to restore health of the cell
- Upstream targets are glycocalyx repair, inflammation and oxidation
- Effective dose of 3.0 mg/kg and maximum tolerated dose of ~1,000 mg/kg in mice, a wide therapeutic window.

The discovery process!

3-combo drugs (FTX)	Blood markers						<ul style="list-style-type: none"> • Curative: atherosclerotic animal, then drug treatment • Preventive: drug introduced before animal made atherosclerotic
	'Hyaluronan'		'Heparan sulfate'		'PAI-1'		
	Preventive	Curative	Preventive	Curative	Preventive	Curative	
A. 226/229/216		+	-	+	-	+	Curative only
B. 226/229/214	-	+	-	+	+	+	
C. 226/229/218		+	-	+	-	+	
D. 226/229/219	-	-	-	-	+	+	
E. 226/229/230	-	-	-	-	+	+	Curative/preventive
F. 224/216/214	-	+	+	+	+	-	
G. 224/216/219	+	-	+	-	-	-	
H. 224/216/219	-	-	+	-	+	+	
I. 216/214/218	+	+	+	-	+	+	
J. 216/214/219	-	+	-	+	+	-	
K. 214/218/219	+	+	+	+	+	+	
	+	+	+	+	+	+	

• Drugs tested in 3-combo to address multifactor nature of CVD
 • Drugs active individually, but curative/preventive only in combo!

'Combo K' = Embotricin™ (anti-embolic™ drug) Targets: Glycocalyx repair, inflammation and oxidation



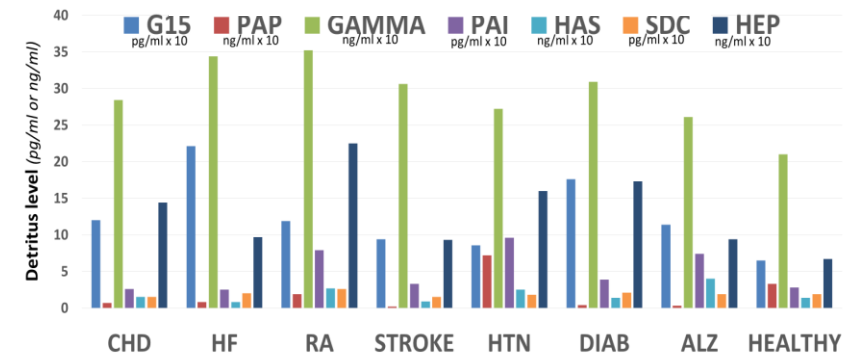
Diagnostic Summary

GlycoCardia™ – therapeutic aide

- No one biomarker can monitor plaques, GCX detritus, clotting
- 4 markers first identified to test drug combo's, 3 added since
- Embotricin™ reduced levels of each marker, reflecting a curative and preventive effect
- All 7 markers correlated to vascular diseases (in-humans)
- Heptabody panel can be used for many drugs
- Companion diagnostic guided drug development reduces trial costs by 60%
- Will be presented as a surrogate end-point to FDA
- Can be used as an aide or stand-alone, including point of care

GlycoCalyx Detritus Fingerprint™ (GDF) – stand-alone diagnostic

- Rapid and correct identification of disease is important
- Fingerprinting involves multicomponent parameters and is the most accurate system for identification (DNA fingerprint)
- Independent analysis of (pilot) studies concluded our panel can increase accuracy of diagnosis and enable disease identification, classification and staging, perhaps serving as guide for improved therapies





Concurrent IND and Proof of Principle Phase 1B In-Human Studies

FDA/IND Study	Projected outcome
Hypertension	“Embotricin™ improves HTN in patients, monitored by GlycoCardia ^{HTN} ”
Out of Country - Australia	Projected outcome
Heart failure	“Embotricin™ improves ventricular ejection fraction, monitored by GlycoCardia ^{HF} ”
Coronary Artery Disease	“Embotricin™ reduces plaque in CHD patients, monitored by GlycoCardia ^{CHD} ”



Intellectual Properties

Issued 2019 – US 9,867,842 B2

Methods and Compositions for Reversing Disruption of the Glycocalyx, Inflammation and Oxidative Damage.

Issued 2021 – PCT/US2016/015015

Biomarkers of Vascular Disease

Pending 2021 – ARTZP003PUS

Drug Treatment and Biomarker Panel Targeted to Diseases due to Multifactorial
Ontology of Glycocalyx Disruption

Pending 2020- International PCT

Filed November 2020

- The U.S. Patent Office as the International Searching Authority (ISA) has recently determined that the application contains multiple inventions.

Proprietary draft in process

Natural Arterial Plaque Mouse Model

Issued Trademarks

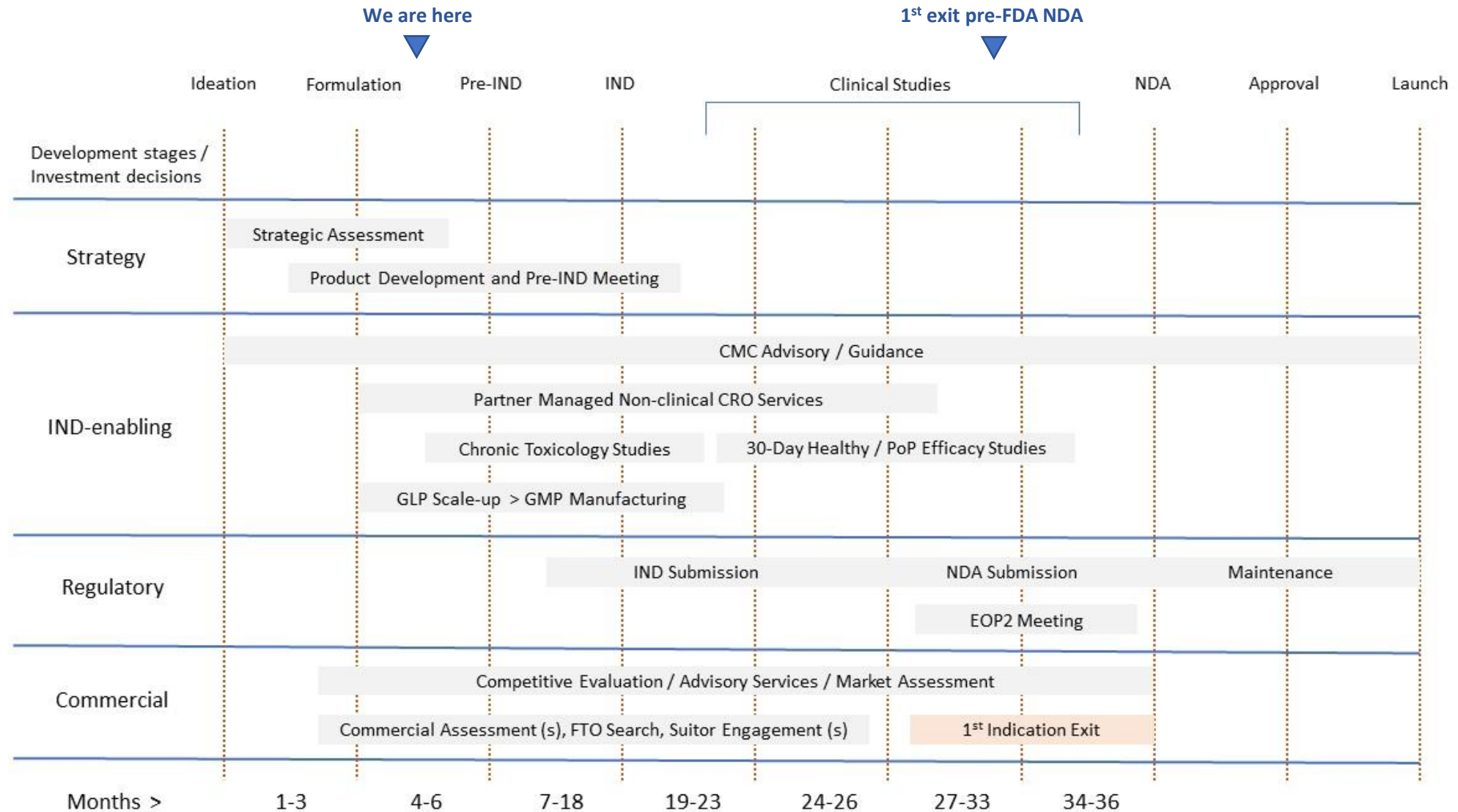
- Arterez™
- GlycoCardia™
- Embotricin™

Applications in process

- 'Glycalyx Detritus Fingerprint
- Anti-Embolics
- Xenoplexic disease

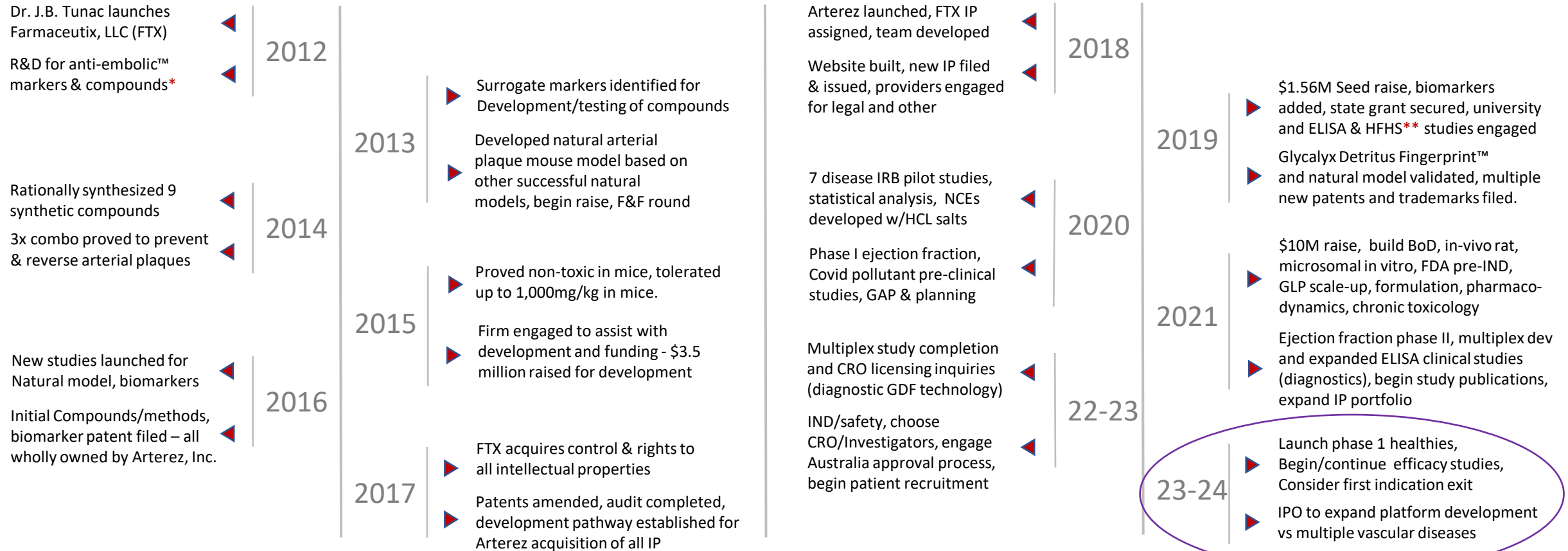


Regulatory and Development Timeline





Arterez – Inception to Exit / Expansion

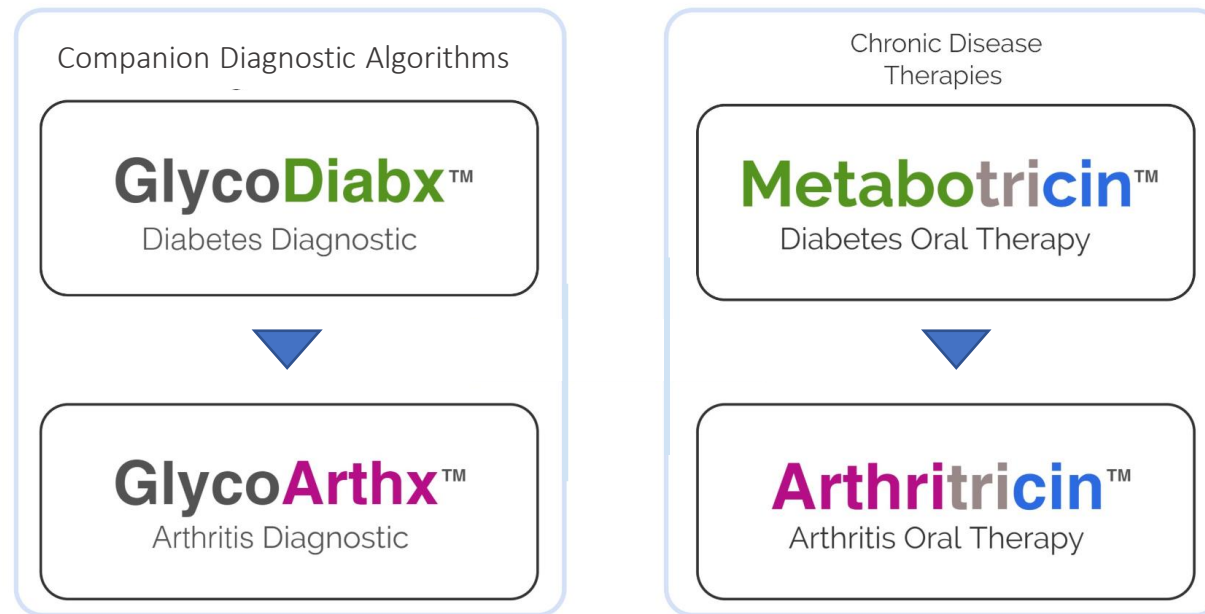


*4 surrogate markers identified, 9 compounds designed and rationally synthesized to target multi-factorial root causes of CVD – also proved interesting for other vascular pathophysiology.

**University Research Study – 7 marker ELISA 32 patients vs HF, HTN, Chest Pain
 **Henry Ford Health Systems (HFHS) MRI translational studies.



- Following first IND and proof of principle studies, Arterez plans an IPO to expand pipeline development





Capital and Value Growth

			Capital raised	Projected Value
2012-2017	Tunac/Farmaceutix discovery, in-kind and IP	R&D	\$3.5M	\$5.0M
2018-2020	Arterez science platform development	Seed (F&F)	\$1.5M	\$ 10M
Q1-Q3 2021	Pre IND, GLP scale-up, formulation, in-vitro, in-vivo, multiplex diagnostic kit development	Bridge/Convertible	\$2.5M	\$ 25M
Q4 21-Q3 22	cGMP, Toxicology, IND, Multiplex dev	A round	\$7.5M	TBD*
Q4 22-Q2 24	FIH IND and PoC studies HTN + HF, CHD proof of principle Exit/license first therapy (pre-FDA NDA)	B round **	\$15M	TBD*
2023-2024	Platform/pipeline growth & expansion Shareholder liquidity Expand development of tech platform/s	IPO; Exit	\$TBD	\$ 1B +

* Independent IP valuations have been obtained for targeted therapy use and IP portfolio

** Funding primarily for 1 FIH IND and 2 Proof of Concept concurrent in-human studies.



Bridge Note Terms

Interest Rate: 6% non-cash, with accrued interest added to original investment upon conversion.

Time of Conversion: Qualified equity raise of minimum \$3M.

Conversion Terms: Convert to equity at 20% discount to pre-\$ value; Value Cap of \$25M.

What is potential ROI for Bridge Note Investors?

This is a scenario assuming the following are completed in a timely manner as expected:

1. \$2.5 M Bridge Note.
2. \$7.5 M Series A. Pre-\$ Value of \$50M.
3. \$15 M Series B. Pre-\$ Value of \$105M*
4. Exit via sale of IP for \$491M*, less FTX royalty** of 5%, net \$466M before expenses.
5. Exit via sale of IP for \$1B, less FTX royalty, net \$950M before expenses.
6. Company adds 50,000 shares to option pool with each round of funding.

Investment	Equity % post-Series A	Equity % post-Series B	Exit at \$466M / ROI	Exit at \$950M / ROI
\$2.5M Bridge Note	7.24%	6.19%	\$28.85M / 11.54x	\$58.18M / 23.52x
\$100K or 4% of Note	0.29%	0.25%	\$1.15M / 11.54x	\$2.35M / 23.52x

The above also assumes Arterez chooses to exit and/or pursue a liquidity event in Phase 1B Clinical. Phase 2/3 risks borne by Buyer.

Future results are speculative; thus, we cannot provide any guarantee.

*Same as independent net present valuations received April 2021. **All IP was acquired from Farmaceutix (FTX) in 2018.



Opportunities and Risk Factors

Opportunities

- Embotricin™ 1st in class novel therapy targeting cellular repair
- Prevented and cured plaques – confirmed by MRI, biomarkers and histopathology (also curative vs Sars/Cov-1)
- Proved non-toxic in mice (tolerated up to 1,000mg/kg.)
- GlycoCardia™ can be used as therapeutic aide and to identify and characterize diseases
- Arterez' platforms are foundation to address other diseases
- Patents issued for 9 compounds, methods and 4 of 7 markers
- Patent attorney building an IP monopoly to add protection
- Statin and other patents have expired
- Independent valuation for therapy vs 3 targeted indications – \$105 million
- Independent valuation of IP portfolio (both platforms) – \$491 million

Risk Factors

- In-vivo Rat study for combination toxicity not complete
- Biomarker proof of principle data only to date
- IP requires continuous development, new filings
- Key people will need to be identified (Boardwise)
- FDA feedback for fixed dose combo unknown (Camargo/Medpace)
- CVD is perceived as difficult, thus lack of innovation
- Chronic toxicology could pose unknown challenges & delays
- FDA IND is not guaranteed – may force alternatives for efficacy data – IRB/other
- In-human efficacy signals will be ultimate determinant of scientific, medical and investment potential



Senior Team Members



Michael Brennan, Chief Executive Officer

Mike is a serial entrepreneur and business leader with a 30 year record of leading and advising start-up, growth ventures and turn-arounds including four start-ups he founded and grew nationally. Mike's education and certifications include the University of Detroit Jesuit 1982, Western Michigan University Psychology and Business 1982-1985, University of Detroit Mercy Cad Design 1985-1986, University of Michigan Entrepreneurial Development 1999-2000 and The Science of Selling 1994, 98, 99. Private and 501C3 boards and community work include Detroit-based start-up advisory, public speaking for students, tech-entrepreneurs, small businesses and non-profits.



Brett Homovec, Chief Financial Officer

Brett has spent the last several years serving entrepreneurs and business owners with strategy and implementation of business development plans, corporate finance and capital raising activities and mergers and acquisition advisory services. Brett gained his Corporate Finance/Mergers and Acquisitions experience as a VP in the Investment Banking Group for Rodman & Renshaw in New York and Chicago, Senior Associate in the Dean Witter Reynolds Corp Finance Group and as an audit professional for Touche Ross & Co. in New York. Brett graduated from Dartmouth College with a B.A. in Economics and received his MBA in Finance from New York University - Stern School of Business.



Arterez – Advisors, Providers and Counsel

Pre-clinical Providers:

DSK Biopharma – *compound manufacturing*
Cambrex – GLP/GMP, refinement, *analysis, formulation*
Wayne State University – ELISA studies
Henry Ford Health System – *translational studies*
Camargo or Medpace Regulatory – *IND and toxicology*
Camargo Research – *CRO selection and oversight*
Various CROs –pre-clinical studies
Utah State University – *corona virus pollutant study*
Clinical Network Svcs. – *GAP analysis/AUS dev plan*

Clinical Providers:

Dr. Bonnie Weiner – *clinical strategy & investigation*
Transhit-Bio – *clinical bio-samples sourcing*
Arbor Assays – *ELISA serum & plasma studies*
Meeghage M. Perera, Ph.D – *biomarker algorithm dev*
Ray Biotech – *diagnostic heptabody kit development and testing*
TBD – *clinical investigation/s and facilities (US/AUS)*

Legal and Advisory:

Weaver Austin Villeneuve & Sampson LLP
Intellectual Properties
Bodman PLC
Corporate filings, offering documentation
Varnum LLP
Trademarks, Publishing
Garrett & Bachand PC
General Counsel
Croskey Lanni
Corporate Accounting
ABA Consulting
Corporate Advisory (AUS)



Arterez – A Breakthrough Scientific Discovery



"Historical development of antibiotics targeting microorganisms led to a cure of infectious disease. An equivalent approach is to target the endothelial glycocalyx to cure CVD by an anti-embolic™ mechanism."

Dr. Joe Tunac

THANK YOU FOR
YOUR CONSIDERATION



Arterez[™]
Diagnostics and Therapies

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