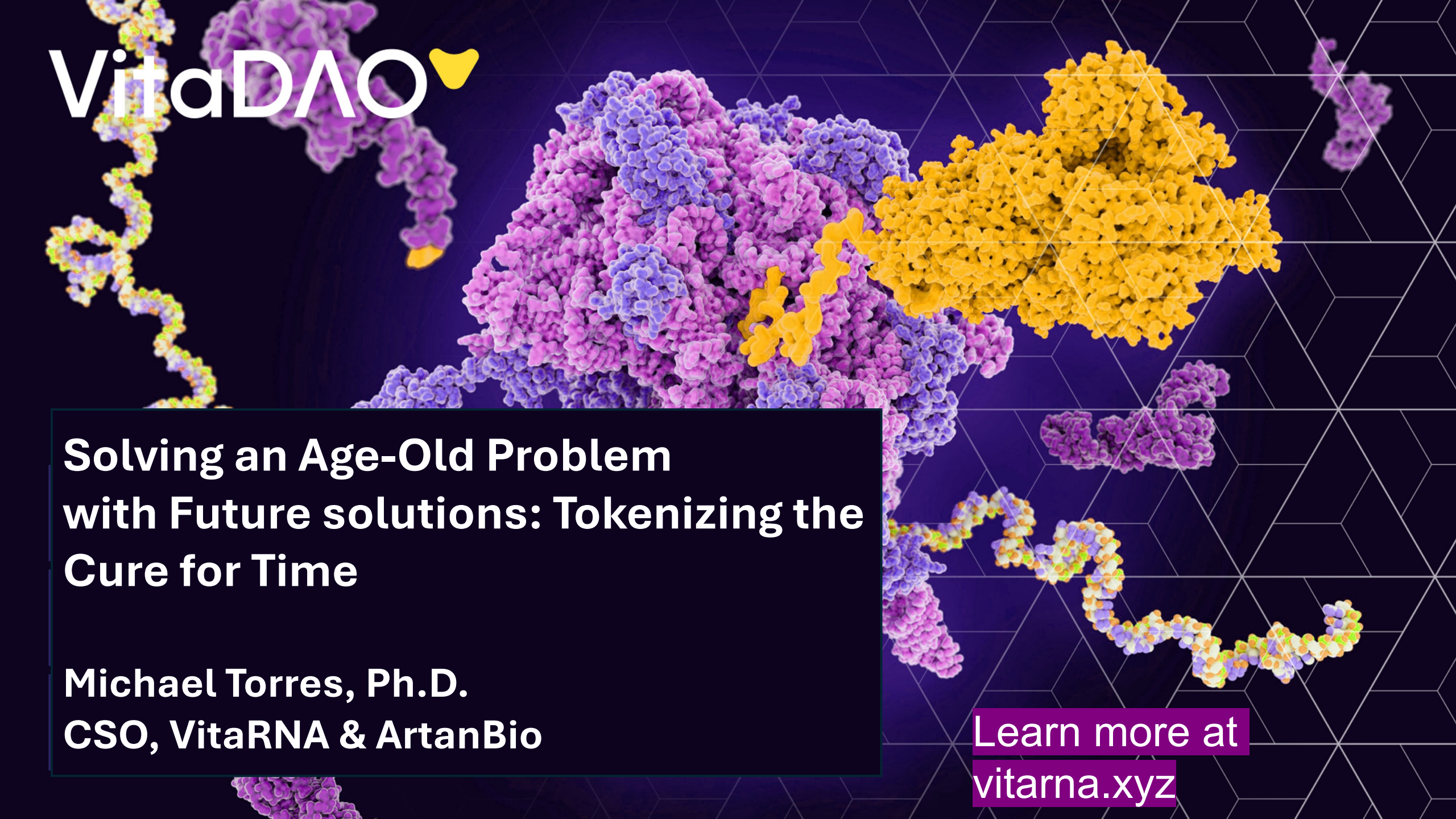


Solving an Age-Old Problem with Future solutions: Tokenizing the Cure for Time

Michael Torres, Ph.D.
CSO, VitaRNA & ArtanBio

Learn more at vitarna.xyz

Developing codon suppressors for aging

ARTANBIO

Suppressor of nonsense mutations targeting arginine CGA codons

- ARTAN is developing gene therapy that can suppress these mutations to reduce and/or eliminate genetic, age-related, and longevity diseases.

Initial VitaDAO funding: $91k

- Enabled development and screening of suppressors
- *In vitro* assays to measure target effect of drug candidates
- Fifteen potential drug candidates – Proof of concept

IPT Funding: $300k

- Validation of lead drug candidates via *in vitro* assays
- Formulation that can be delivered to animals
- Proof of concept in animal models
- Patent filings

Anthony Schwartz, PhD
Co-Founder, Chief Executive Officer
anthony@artan.bio

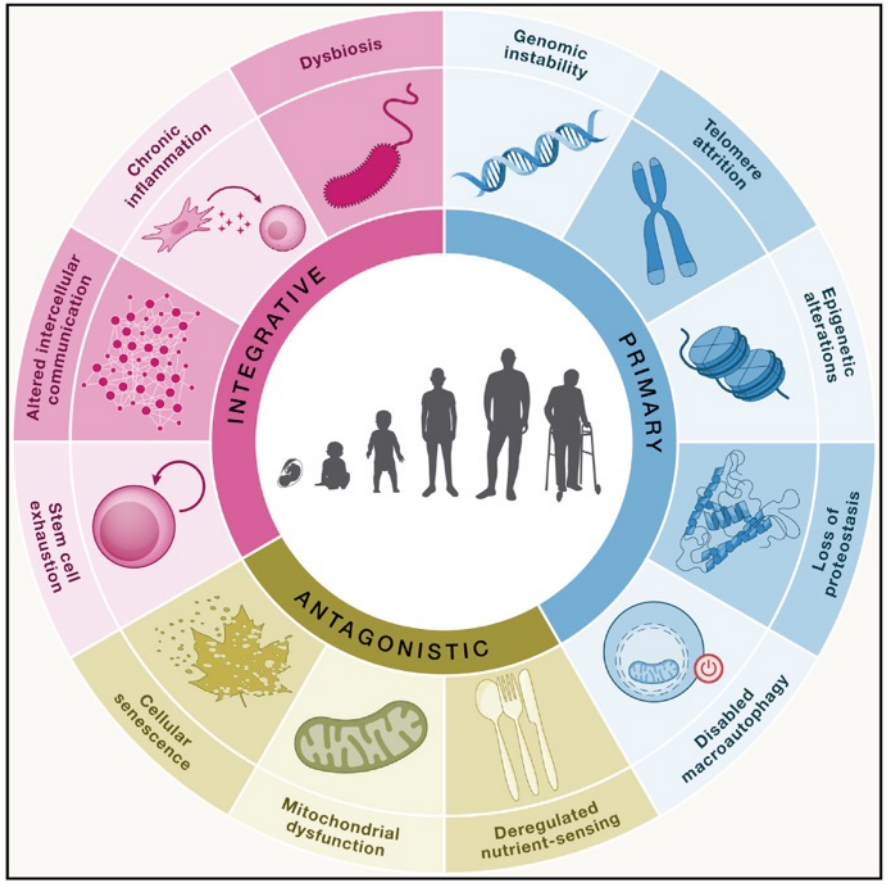
Michael Torres, PhD
CEO, CrossBridge Bio
Co-Founder, ReCode Therapeutics
CSO, ArtanBio
michael@artan.bio

Looking to raise additional capital to continue development

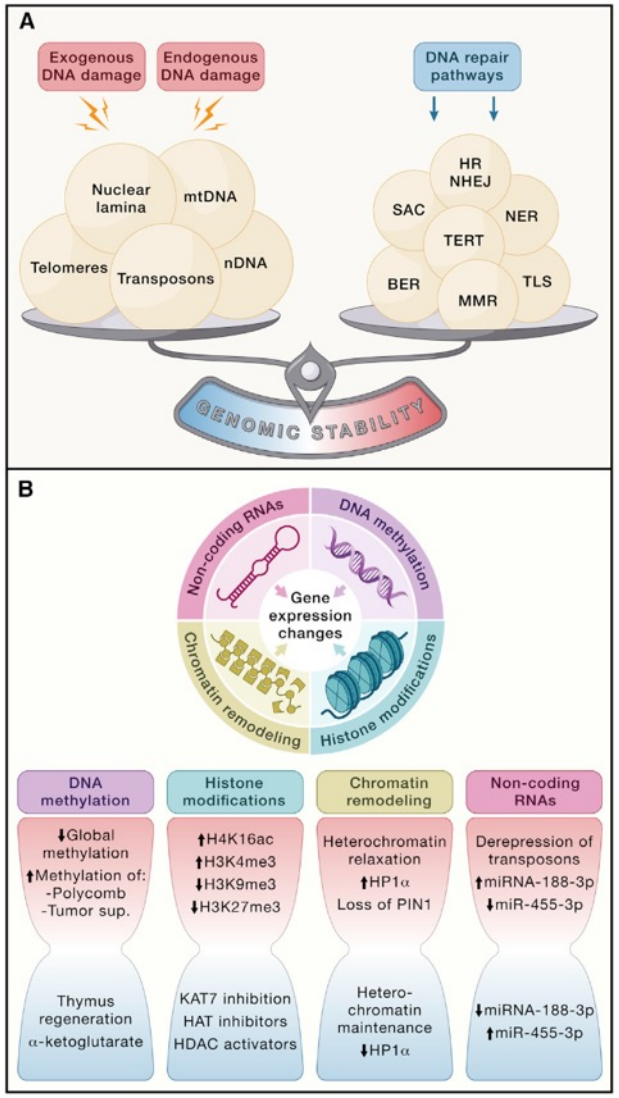
Genomic instability underlies many causes of aging

ARTANBIO

The Hallmarks of Aging



Genomic instability underlies many causes of aging



Can one gene-therapy address multiple aspects of aging?

Carlos López-Otín, Maria A. Blasco, Linda Partridge, Manuel Serrano, Guido Kroemer, Hallmarks of aging: An expanding universe, Cell, Volume 186, Issue 2, 2023, Pages 243-278, ISSN 0092-8674, https://doi.org/10.1016/j.cell.2022.11.001.

Biology we address: CpG mutations accumulate over time and are correlated with aging

ARTANBIO

Analysis | Published: 13 January 2025

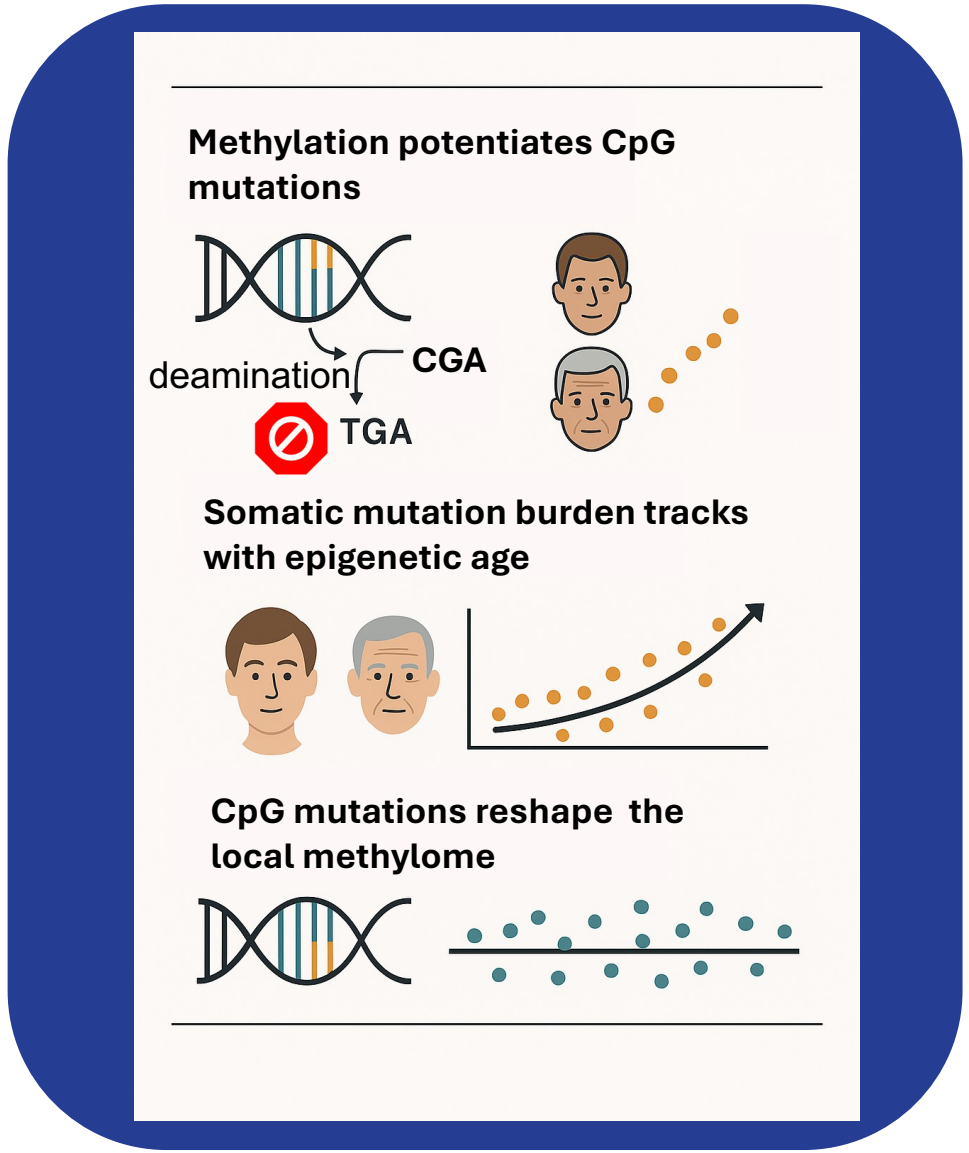
Somatic mutation as an explanation for epigenetic aging

Zane Koch, Adam Li, Daniel S. Evans, Steven Cummings & Trey Ideker

Nature Aging (2025) | Cite this article

Summary of findings:

- CpG Mutations Coincide with Age-Related Methylation Changes
- Mutation Accumulation and Epigenetic Clocks Correlate
- Methylation and Mutations Influence Each Other
  - **Methylation can potentiate mutation** (due to the spontaneous deamination of **5-methylcytosine to thymine**)
- Somatic Mutation Burden Predicts Biological Age



Arginine mutations occur in many proteins related to aging

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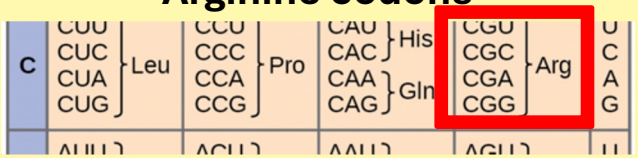
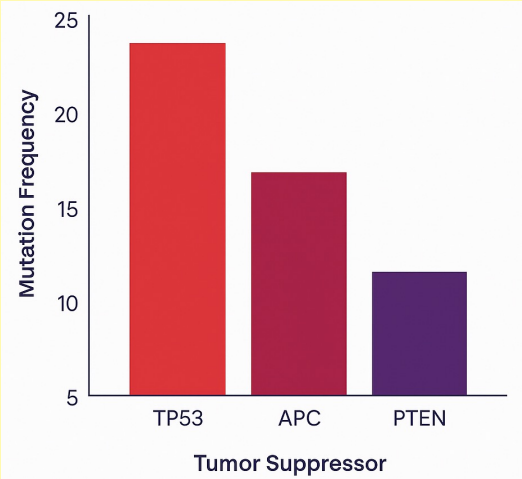
Arginine codons

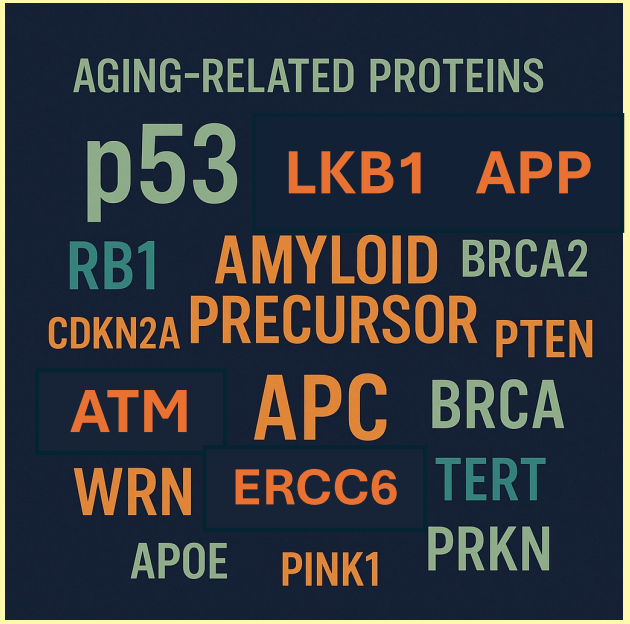


Genome-wide underrepresentation of CGA codons
Expected: ~1 per 60 codons randomly
Observed: ~1 per 150–170 in critical genes



CGA→TGA mutations cluster in tumor suppressors (Trexler et al. 2024)

Arginine CGA codons are present in many age-related proteins



Cystic fibrosis, autism, neurological conditions, cancers, etc.

Suppression of arginine mutations could impact multiple age-related pathways

Source: Romanov, et al 2017

Artan-102 is a new approach to combat aging that leverages the DeSci community by tokenizing the asset (VitaRNA)

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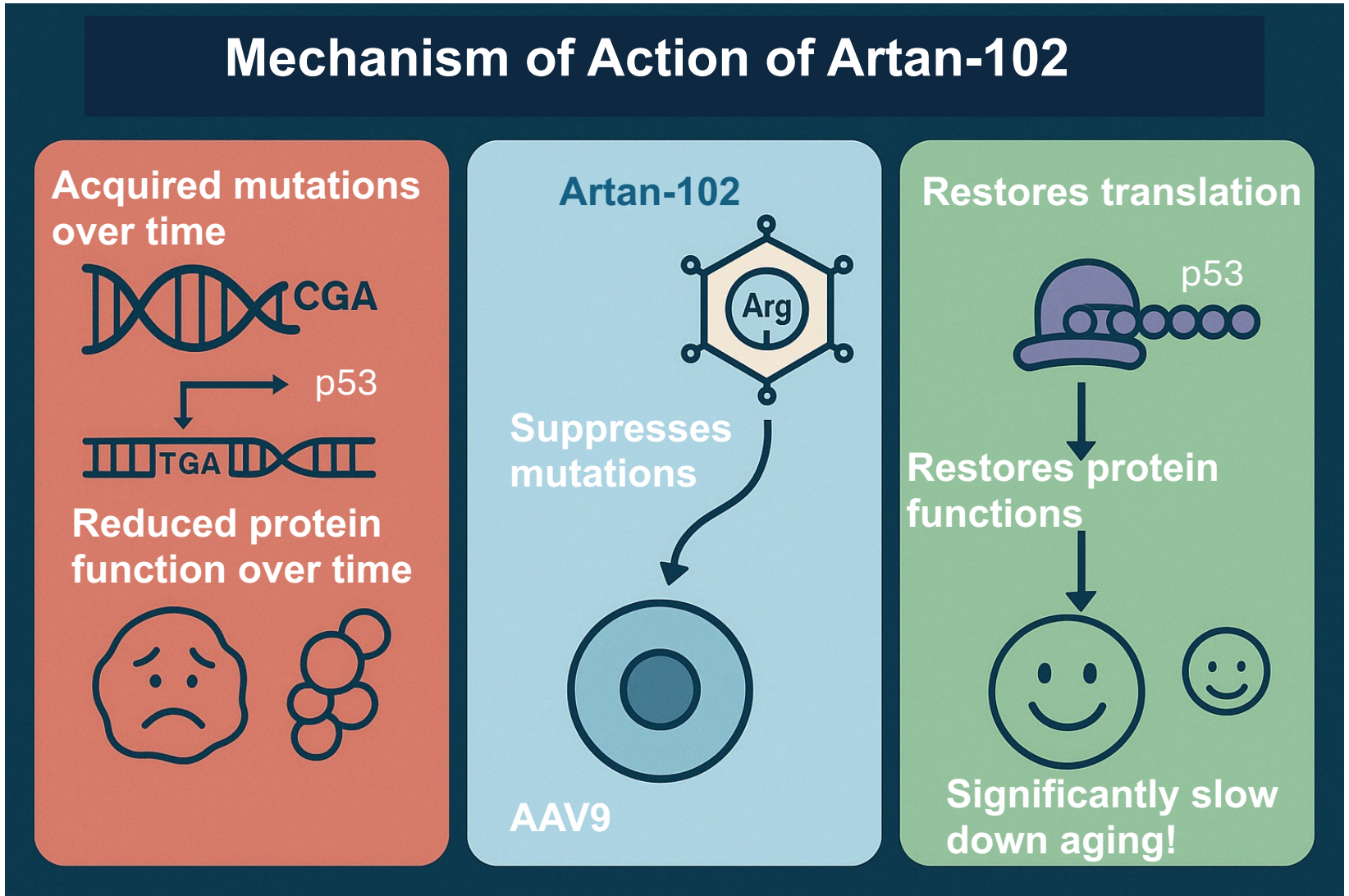
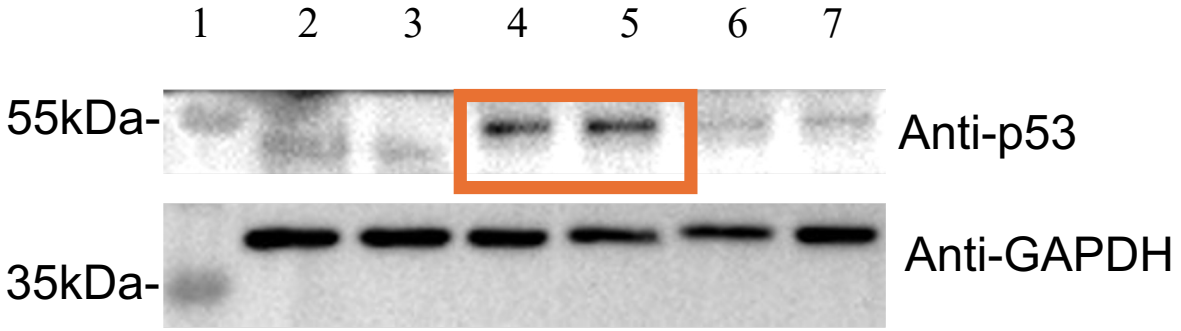


We have multiple vector candidates that significantly suppress arginine nonsense mutations



1	2	3	4	5	6	7
M	no transfection	Vec1	Vec2	Vec3	Vec4	Vec5

Conclusion: The expression of Vector 2 and Vector 3 significantly induces the expression of p53 protein.

Reporter cell line (Calu-6)
Arginine nonsense mutation in the tumor suppressor p53 (R196X/R196X)
Performed at a 3rd party CRO

Antibody
Santa Cruz :p53
https://www.scbt.com/p/p53-antibody-do-1
Reference antibody： GAPDH,37kDa

AAV9 is the ideal vector for a systemic gene therapy product

ARTANBIO

Target Tissue for AAV Serotypes

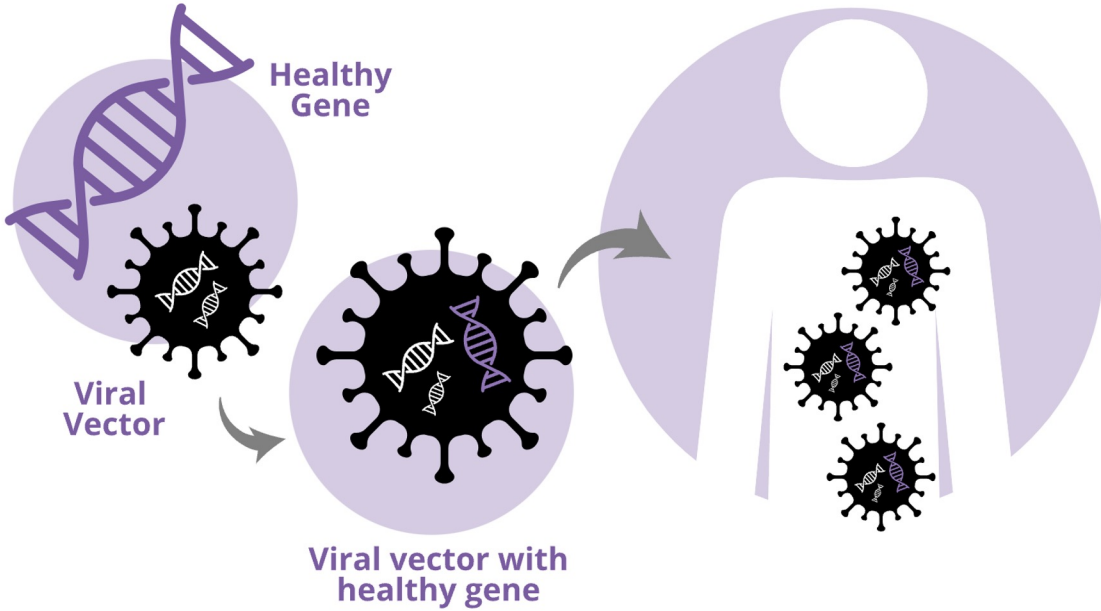
The naturally occurring AAV vectors

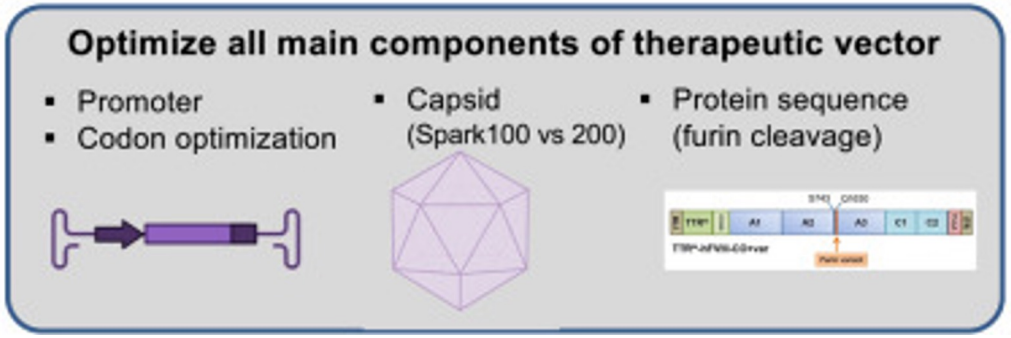
	Tissue Tropism							
Serotype	CNS	Retina	Lung	Liver	Pancreas	Kidney	Heart	Muscle
AAV1	✓	✓	✓	✓	✓		✓	✓
AAV2	✓	✓	✓	✓		✓		✓
AAV3	✓			✓				✓
AAV4	✓	✓	✓			✓	✓	
AAV5	✓	✓	✓	✓				✓
AAV6	✓	✓	✓	✓			✓	✓
AAV7	✓	✓		✓				✓
AAV8	✓	✓		✓	✓	✓	✓	✓
AAV9	✓	✓	✓	✓	✓	✓	✓	✓
AAV10			✓	✓		✓	✓	
AAV11			✓			✓	✓	✓
AAV12								✓
AAV13	✓							

Next Step: Formulate a drug that can be used in animal models for proof of concept

Lead Vector Evaluation

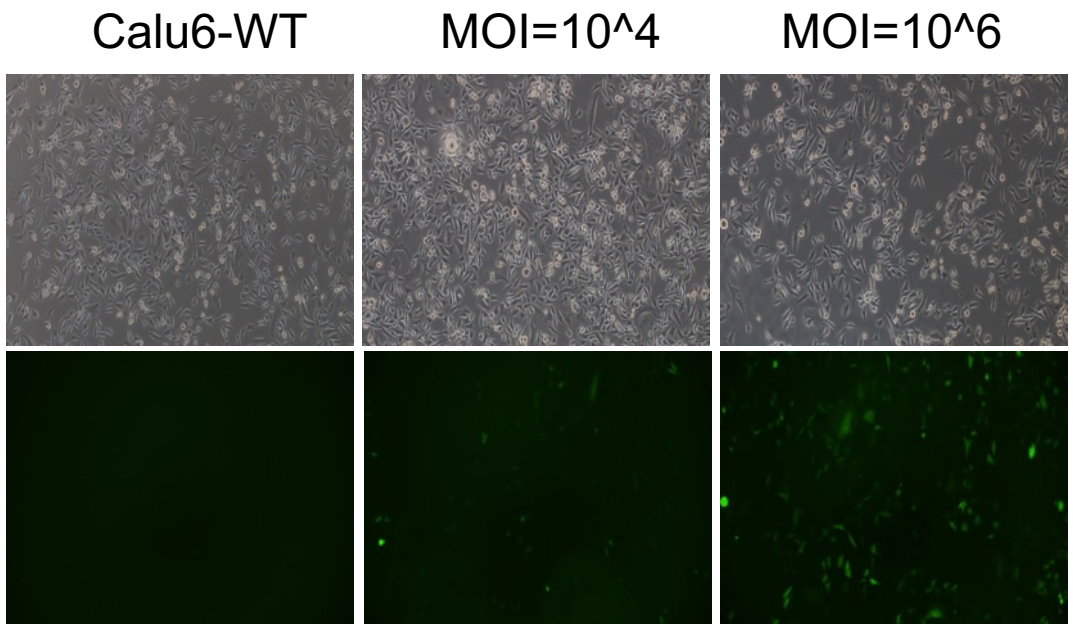
- Second funding round of $300k via IPT
- Vectors will be encapsulated into AAV9, broad tissue tropism compared to others, and the FDA has approved AAV9-based gene therapies
- ARTAN-101 & ARTAN-102 AAV drug candidates will be tested in animal models
- Safety/Distribution/Target Hit
- Once safety/efficacy is established, a clinical pathway will be devised, and the drug will be optimized for IND-enabling studies and human clinical trials





https://www.askbio.com/aav-gene-therapy/

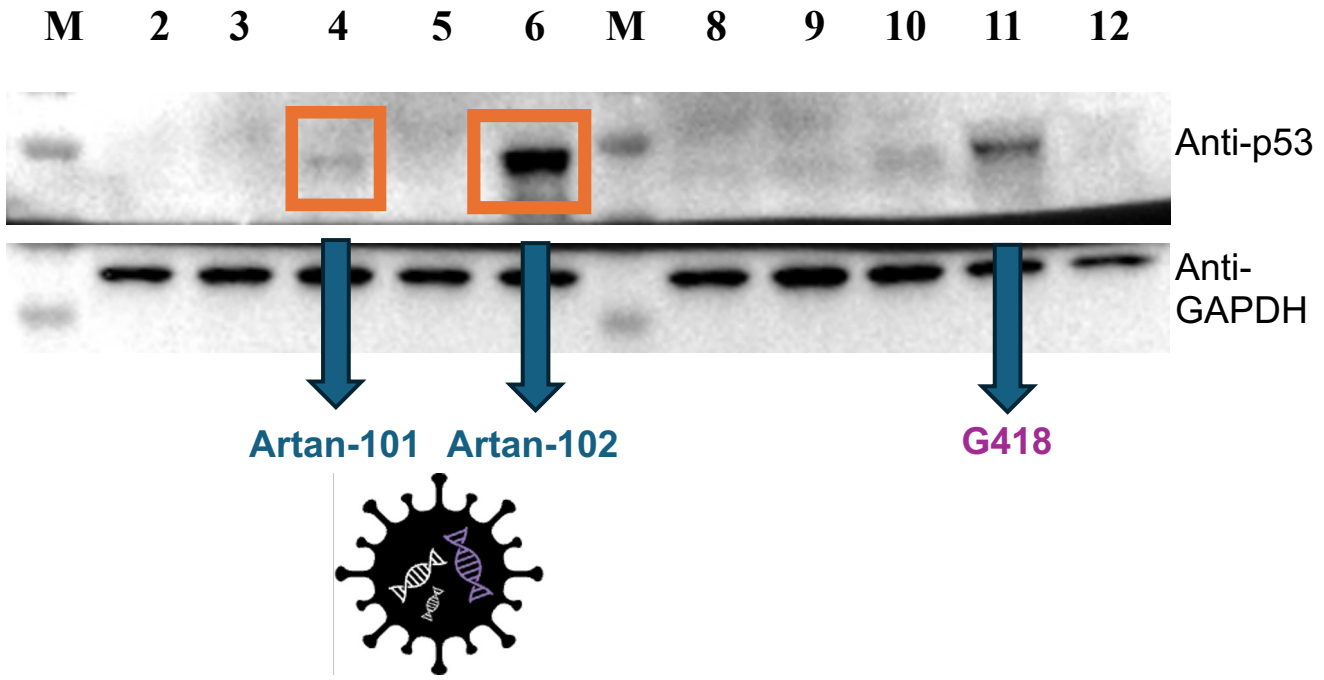
Vector 2 and 2 can be encapsulated in AAV9 and are active in cells



Reporter Virus w/GFP
Green = delivery

Bright, 10ms
Green, 500ms
Time, 72h

(Contrast adjusted for presentation purposes)

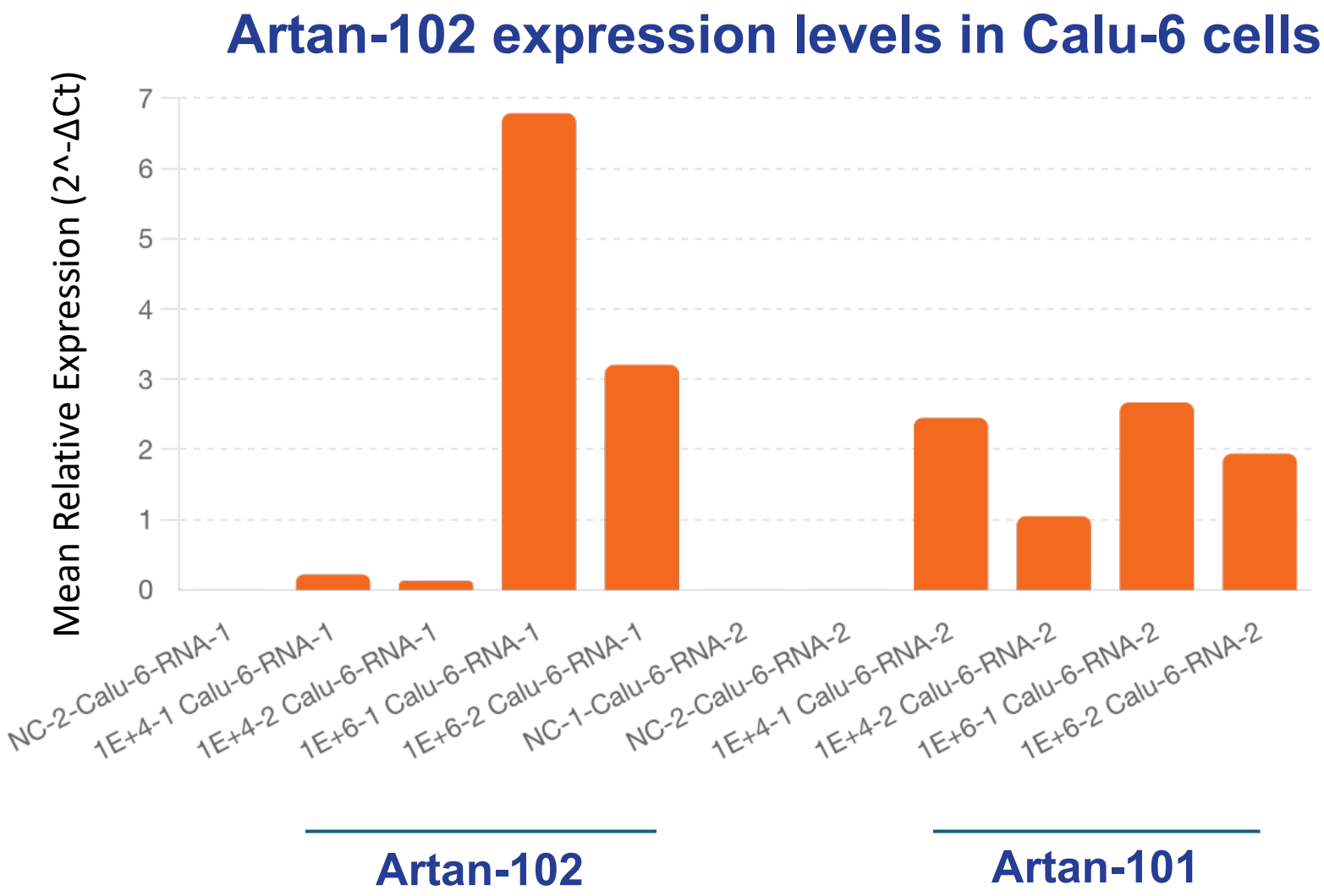


Key Point: Artan-102 is our lead candidate that can be scaled up to support additional animal safety and efficacy studies

Reporter cell line (Calu-6)
Arginine nonsense mutation in the tumor suppressor p53 (R196X/R196X)
Performed at a 3rd party CRO

There is a clear dose-response of Artan-102 when delivered *in vitro*

ARTANBIO



A reputable manufacturer is needed to advance to the next steps

ARTANBIO

Bench to IND – Lonza's Xcite™ AAV Platform

Scope & Deliverables – Estimated Timeline*

Lonza
Cell & Gene

Contract signed (DMSA, QAA, SOW)

Activities	Estimated Timeline (Months) 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	Outputs
Material Transfer and Documentation; Gap analysis		• Gap assessment report • Material procurement (including plasmids)
Process and assay feasibility an scale-up confirmation/pilot run		• assay feasibility demonstration • Shake flask and 3L feasibility report • 50L confirmation/pilot run (can be used for tox)
Process tech transfer to GMP QC assay verification/qualification		• QC assay transfer & qualification • GMP batch readiness
Tox Run at scale (optional) GMP Run - BDS production		• *50 or 250L at scale tox run (optional)* • 50 or 250L scale GMP batch • BDS production completion
GMP Release Testing		• GMP release testing of BDS
DP Fill/finish		• DP fill in standard, pre-qualified vials
DP Release Testing		• GMP release testing of DP

Key Next Step

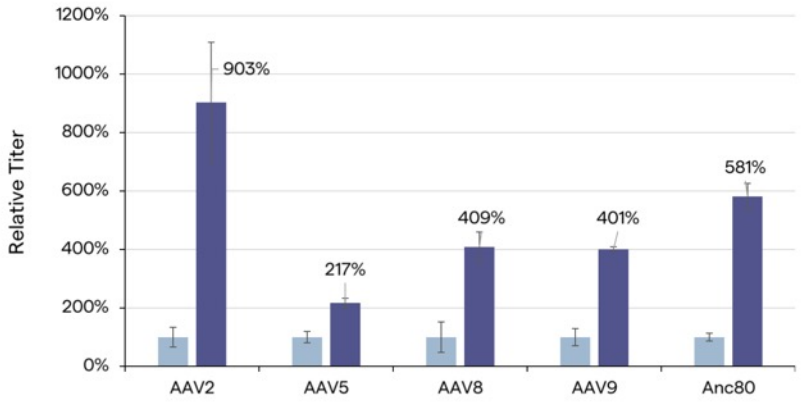
***We invite you to:**

Test drive our platform performance through a feasibility assessment and see how well your transgene and selected AAV serotype works

Alternatively, you can license the XCite® HEK293 cell line and/or plasmids to boost AAV productivity, packaging efficiency and yield in your facility

NOTE: This is an initial estimate and is subject to scientific risk and both parties need to discuss risk profile as part of scope refinement.

*Timeline is an estimate only provided for illustration purposes and is subject to change. Actual timeline is subject to a number of program and product specific factors.



Transgene = GFP
Control: Competitor cell line + standard plasmids
Lonza: 5B8 cells + Lonza plasmids (LHI pHelper + LHI pRep/Cap)

The platform you use to create the virus makes a difference

ArtanBio has signed a contract with Lonza to produce ARTAN-102 at scale. The process is ongoing

Preliminary safety and PK study in mice supports further development

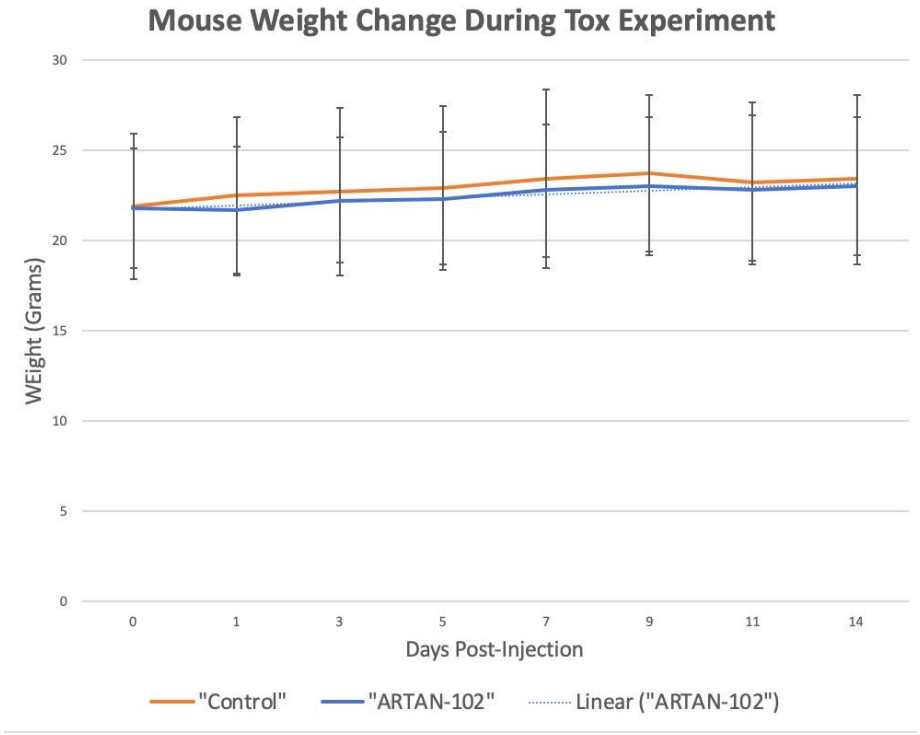
ARTANBIO

RFP: Pilot safety and PK study for Artan-102 (AAV9 gene therapy)

Single-dose study
Tail-vein injection
Dose: 1.8x10^12 GC/mouse
Stock Concentration: 2.74x10^13 GC/ml
2-test groups:

- Vehicle: PBS
- Artan-102 (AAV9-ARTAN-102)
  - For this SOW, the test article is considered well-tolerated
  - COA confirms acceptable bioburden (low endotoxin, etc)

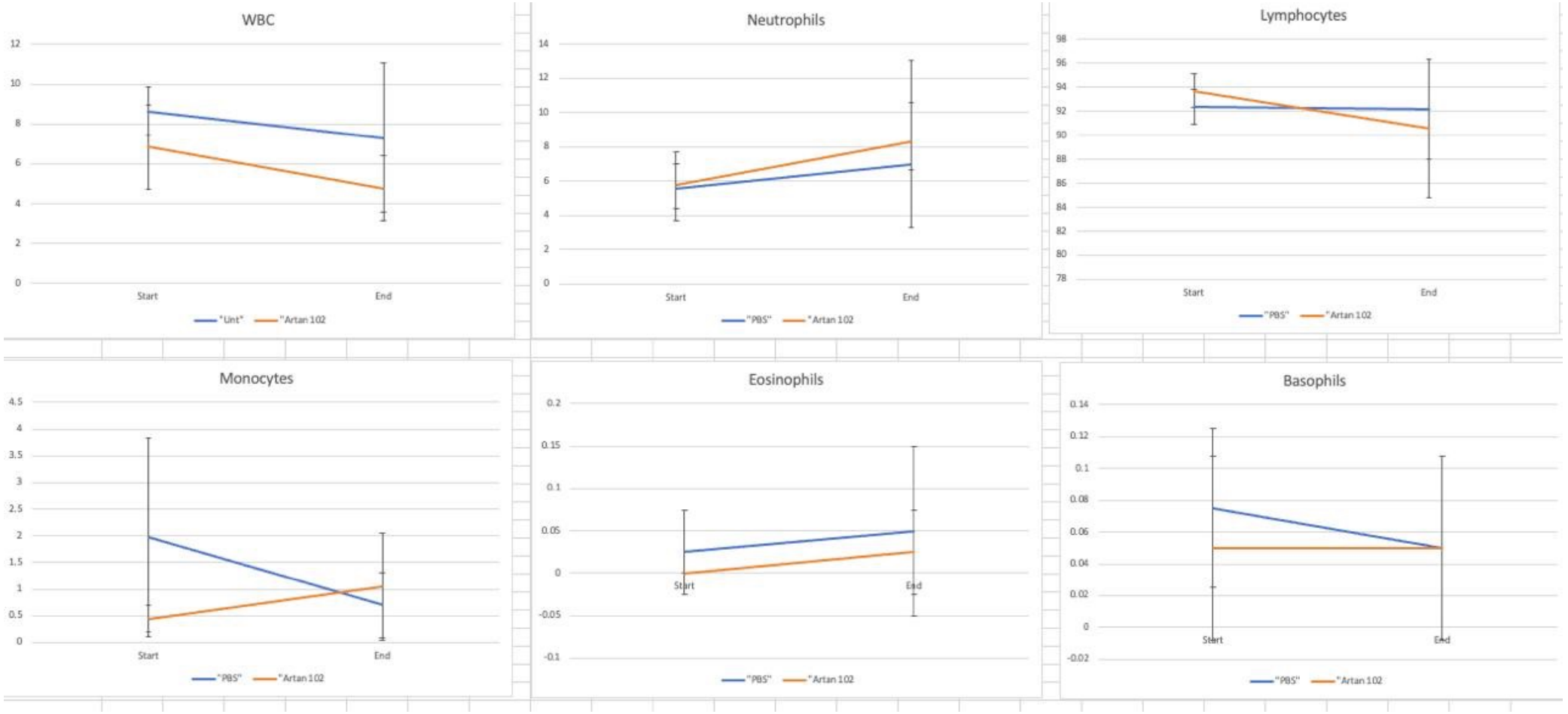
Mouse strain: C57BL/6
Mice per group: 4 (2 Female/2 Male)
Duration: 14 days
Body weight every other day
Clinical observation every other day
Clin chem pre/post-treatment
Tissues collected at the end of the study for RNA extraction include the liver, lung, pancreas, kidney, brain, and heart. Stored in RNAlater.



No significant changes in body weight and hematological parameters were reported

Preliminary safety and PK study in mice with Artan-102 shows excellent safety

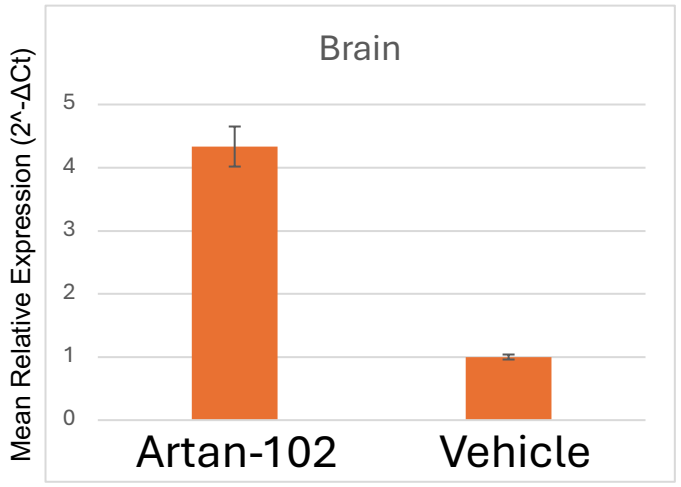
ARTANBIO

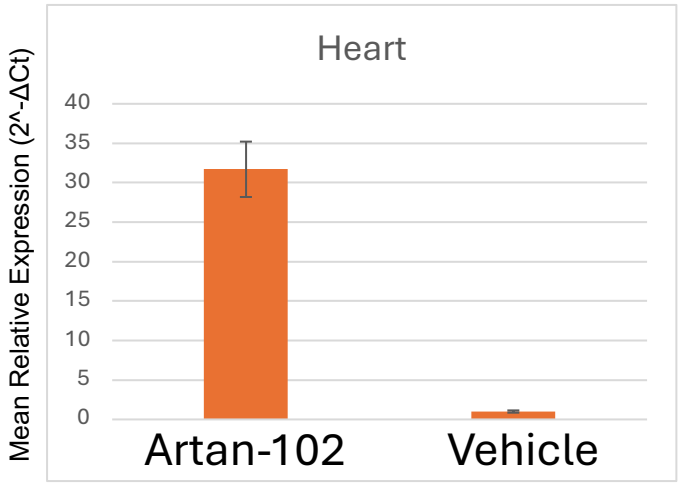


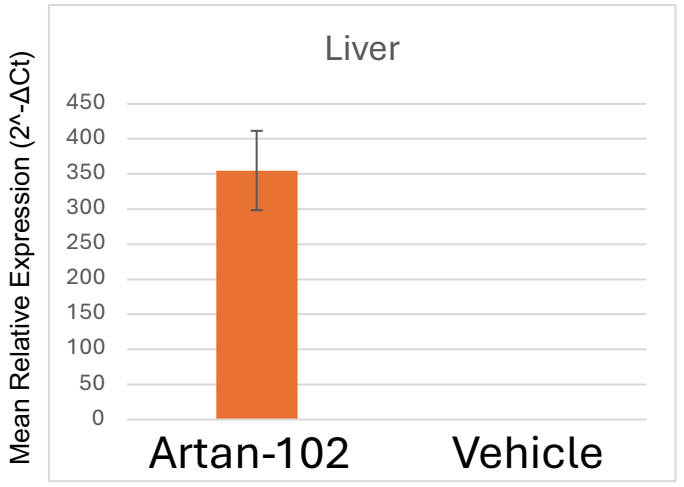
No significant blood cell findings reported

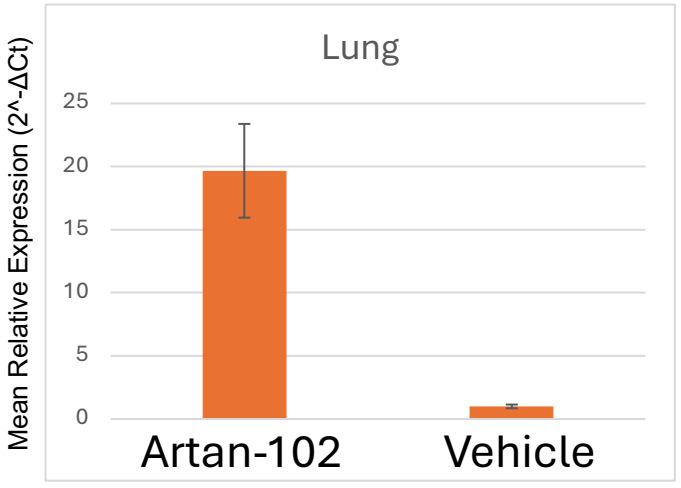
Artan-102 is detected in several key tissues in the mouse

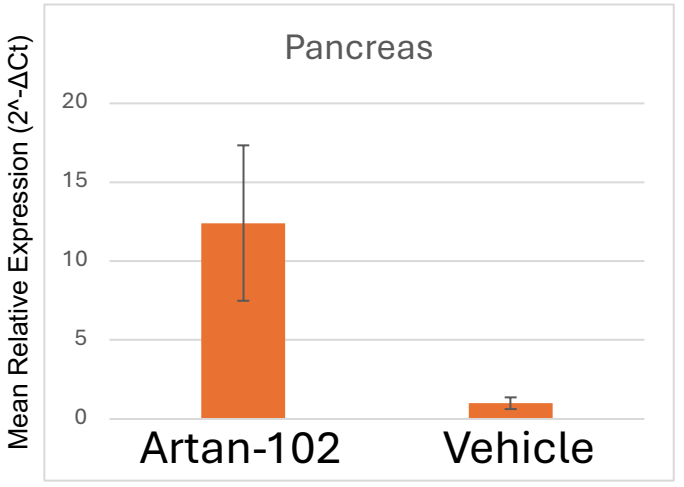
ARTANBIO

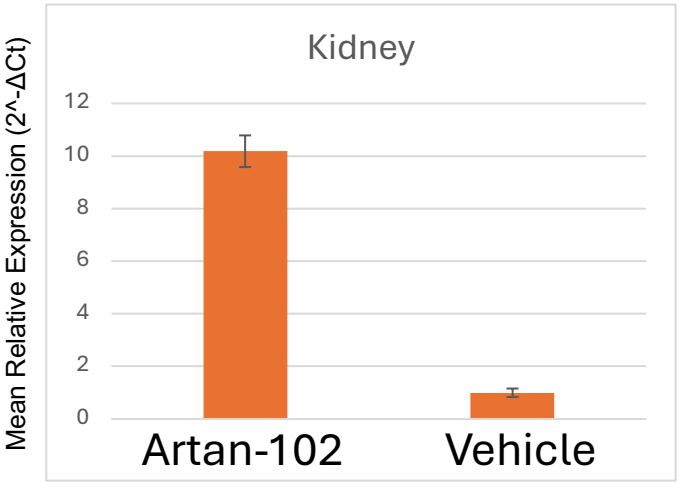












Dose: 1.8x10^12 GC/mouse
Duration: 14 days post-dosing

Post-chemo aging prevention is an ideal proof-of-concept for Artan-102

ARTANBIO

Chemotherapy induces:

Somatic mutations
Accelerated epigenetic aging

AAV9 efficiently reaches peripheral tissues

Biomarkers available:
Methylation clocks
Somatic mutation burden
Frailty
Cognitive function (chemo brain)

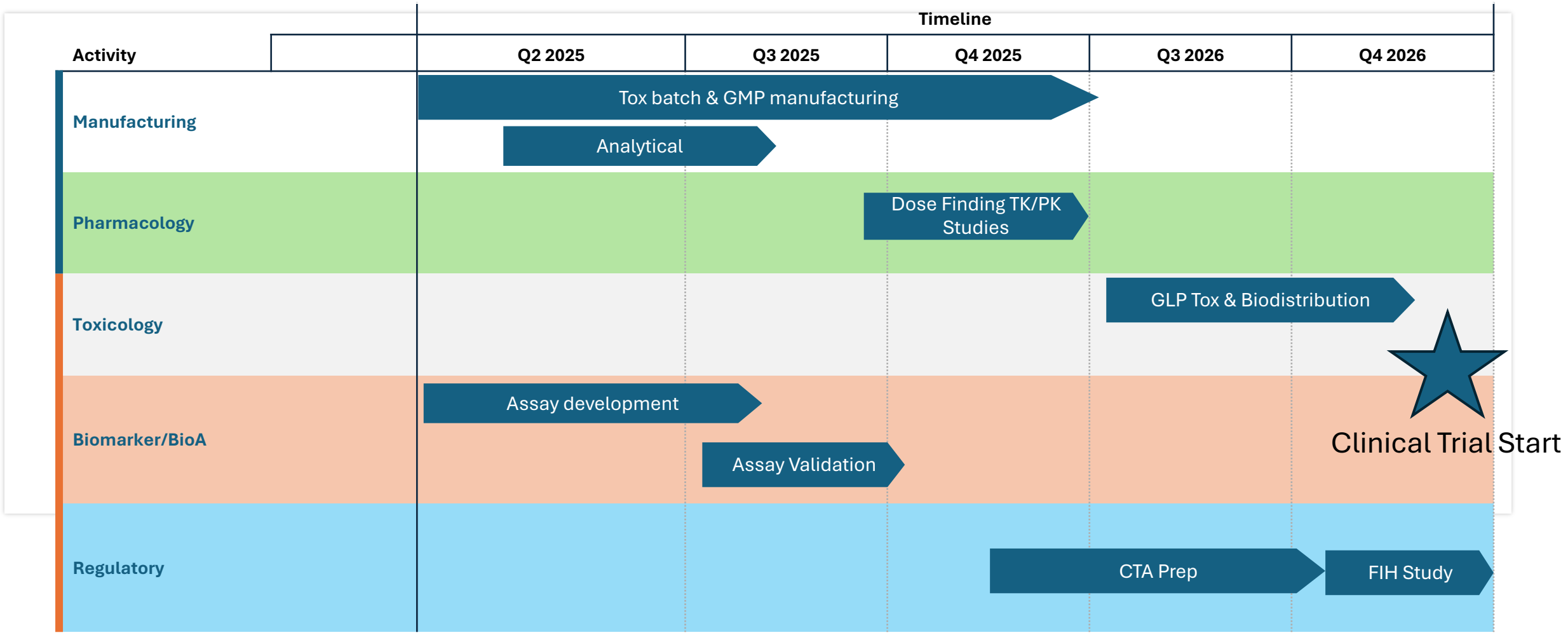
Post-chemo market overview

12M chemo-treated patients annually worldwide
~25–30% show accelerated aging post-treatment

Initial targetable population:
~600,000 patients/year globally

Proposed one-time therapy price:
US → $400,000
EU → $300,000
MENA → $150,000
Blended global ASP ~ $300,000
Modeled Year 7 global revenue (10%): ~$6.3B
Total NPV (US + EU + MENA): ~$14.3 billion

Timeline centered around GMP material and GLP tox to support FIH



Timeline subject to regulatory feedback

$5M to initiate a clinical trial within *12 months (in the UAE)

Category	Estimated Duration	Amount ($)	Rationale / Key Impact
GMP Manufacturing	9 months	2,000,000.00	Engineering run and GMP run to support a FIH. Clinical-grade AAV9 Artan-102 production; process started.
GLP Toxicology & Biodistribution	6 months	1,000,000.00	UAE guided species. Includes BioA method development. Required for UAE CTA; supports dose rationale and safety
Regulatory & Trial Prep (UAE)	3 months	300,000.00	CTA prep, local UAE guidance, IRB/ethics
Phase 1 Trial (UAE)	3 months	700,000.00	Small proof-of-concept study with biomarker endpoints
G&A: Consultants, IP, Legal	12 months	300,000.00	Lean team, IP, consultants, travel, quality oversight
Contingency & Misc.		200,000.00	Risk buffer for parallel workstream execution
Total		4,500,000.00	

ArtanBio met with Abu Dhabi Department of Health Regulators in May 2025. Guidance was for single-species GLP tox and GMP manufacturing to support FIH. Discussed premature aging post-chemo as a potential human proof of concept. Discussions are ongoing

*Subject to change based on data and regulatory feedback

Artan-102: Transforming Aging Prevention

ARTANBIO

✅ **First gene therapy targeting aging prevention**
→ Suppresses CGA→TGA nonsense mutations, the genome's most hypermutable sites
✅ **Initial indication: Post-chemo aging prevention**
→ ~600,000 patients annually are at high risk
→ Global aging prevention market potential: **$6–14B/year**
✅ **Fast-track regulatory pathway in Abu Dhabi. Conditional marketing after phase 1!**
→ Lower costs, faster approval timeline
✅ **$15M funding unlocks Phase 1 human data ($5M unlocks IND)**
→ Potential first approval for aging therapy worldwide
✅ **Significant upside for early investors**
→ Global NPV estimate ~$14.3B
→ Opportunity to shape the future of aging medicine
Artan-102 isn't just treating disease—it's intercepting aging itself.

What's coming on the horizon?

- Confirmation of manufacturing conditions for Artan-102 made at VectorBuilder using their clinical-grade vector.
  - Readout: Artan-102 levels in cells
  - Estimated data drop: End of November 2025
  - What it unlocks: Conditions for a large-scale batch to support a non-GLP NHP (monkey) tox study
- Confirmation of Artan-102 activity using the Syenex VivoCell platform
  - Readout: p53 rescue and Artan-102 levels in cells
  - Estimated data drop: November 2025
- Completion of Lonza Artan-102 material generation.
  - Delivery date of material: End of September 2025
  - After delivery, we will assess activity (p53 rescue and Artan-102 detection) in cells
  - Estimated data drop: End of November 2025
  - What it unlocks: Conditions for a large-scale batch to support a non-GLP NHP (monkey) tox study
- Bonus: Development of anti-aging serum using Artan-102
  - Evaluation of RNAs that could be packaged into a formulation for delivery into the skin.
  - TBD!
  - **Why Tokenholders Should Watch**
    - These deliverables unlock the next major value inflection: showing in vivo functional effects, scalable production, and safety → fundamentals for regulatory & commercialization.