BUSINESS COUNCIL REPORT

MEMBER SPOTLIGHT

Rubedo Life Sciences

April 2025

U.S.-U.A.E. Business Council

Rubedo

Our best science. Your best life.

Mission

To empower vibrant healthspan so people can live longer, healthier lives.

Pioneering a new era of longevity science

Rubedo Lead Drug Candidate RLS-1496 Will Be the First GPX4 Modulator to Enter Phase I Clinical Trials

Rubedo Life Sciences is an AI-driven, clinical-stage biotech focused on discovering and rapidly developing selective cellular rejuvenation medicines targeting aging cells. Its unique approach to drug discovery allows them to precisely identify and selectively target pathologic and senescent "zombie" cells, which are known to release harmful substances, damage healthy cells, and accelerate the aging process. These inflammaging zombie cells play a key role in the progression of pulmonary, dermatological, oncological, neurodegenerative, fibrotic, and other chronic disorders and age-related diseases.

Its lead drug candidate, RLS-1496, a potential first-in-class, disease-altering GPX4 modulator, will be the first GPX4 modulator to enter Phase I clinical trials (April 2025) ahead of multiple biotech and leading pharmaceutical companies, putting Rubedo at the forefront of this new era in longevity science

Financial Highlights

$46 million

Closed Series A in April 2024

Initiated Series B in January 2025 to raise up to

$100 million to fund development and clinical trials

Rapidly Growing Aging Market Demands Innovative Approaches to Longevity Medicine

The population of people over the age of 60 will dramatically double from 1 billion to 2 billion by 2050,[1] which will have a significant impact on healthcare systems. Rubedo's discovery and development technology breakthroughs in longevity science— including its proprietary ALEMBIC™ discovery platform and its SenTeCh™ drug development process— position the company to be a leader in this growing market

$600 billion

Addressable Global Market[2]

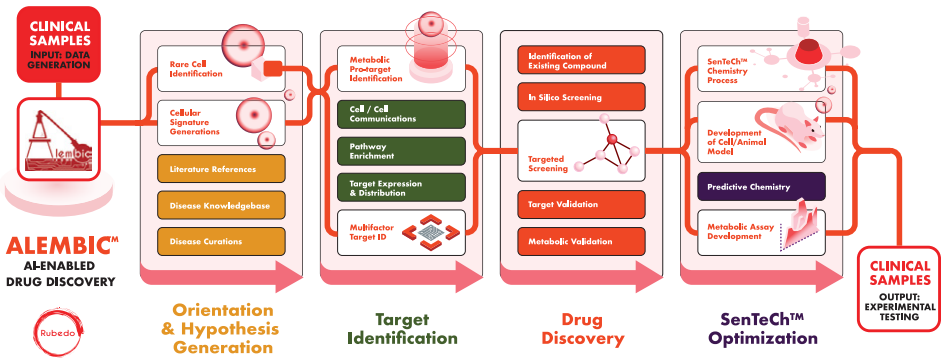
$127 billion

Senotherapeutics Market by 2030[3]

Rubedo's Proprietary Technology Identifies Targets Within Pathologic and Senescent Cells and Develops Selective Cellular Rejuvenation Medicines for Those Targets

Through its proprietary AI-driven drug discovery platform, ALEMBIC™–Algorithms for Life-Extending Medicine with Biology, Informatics, and Chemistry–with SenTeCh™ chemistry technology, Rubedo is rapidly developing novel medicines that are designed to specifically bind to senescent or other pathologic cells while sparing healthy cells, potentially increasing efficacy and reducing side effects. Rubedo's single-cell RNA sequencing (scRNAseq) and spatial multi-omics ALEMBIC™ pipeline provide the precise resolution to target specific cell types and changes within these cells.

- RLS-1496 reached Phase 1 clinical trial in just 3 years—two times faster than the industry average for drug discovery and development.[4]



RLS-1496 is a potential first-in-class GPX4 modulator to target pathologic or aging cells

Rubedo's lead candidate RLS-1496 is a potential first-in-class, disease-altering GPX4 modulator selectively targeting pathologic senescent "zombie" cells that drive chronic degenerative diseases and conditions associated with biological aging processes. These include immunology and inflammation (I&I), dermatology and skin aging, metabolic syndrome (obesity, diabetes, liver fibrosis), sarcopenia, interstitial lung disease, neurodegenerative disease, chronic pain, cancer, chronic kidney disease, and cardiovascular disease.

GPX4 is a major antioxidant-regulating enzyme that protects cells and tissues from free radical damage and is essential for cell survival. In contrast, GPX4 deficiency is associated with regulated cell death (RCD), especially ferroptosis. In certain pathologic cells, aging is associated with an imbalance in GPX4. By modulating GPX4 to selectively encourage cell death in ferroptosissensitive senescent zombie cells, RLS-1496 may be able to clear these cells to not only fight disease, but also support healthy cells to function properly.

- **RLS-1496 reduced senescence markers and inflammation burden of chronic skin conditions** for treatment of chronic dermatitis in **ex vivo biopsies of human skin**[5] and in a pre-clinical study in mice[6]
- **GPX4 reduction demonstrated a longevity effect** in another pre-clinical study (not involving RLS-1496), showing an **increase in lifespan in mice**[7]
- **RLS-1496 will be the first GPX4 modulator to enter Phase I clinical trials**–ahead of multiple biotech and leading pharmaceutical companies evaluating the same target–and will test for inflammatory skin conditions, including psoriasis, alopecia, vitiligo, dermatitis, pre-cancerous conditions, and others[8]

Rubedo Longevity Science Pipeline

In addition to its lead candidate, RLS-1496, Rubedo is focused on developing several other selective cellular rejuvenation medicines based on different targets in multiple age-related conditions and diseases, including inflammation, metabolic disorders, and lung fibrosis, through its lung interstitial disease program, supported by the California Institute for Regenerative Medicine (CIRM). They also are seeking to expand their portfolio by exploring other novel longevity drug candidates and technologies.

Program	TA	MoA	RoA	Discovery	Lead Op	IND Enabling	Phase 1
RLS-1496	I&I / Dermatology & Skin Aging	GPX4 Modulator	Topical				April 2025 Expected data readout 4Q25
			Systemic				2026
RBX-002	Respiratory (IPF, COPD)		Systemic				
RBX-003	Metabolic (obesity, diabetes, liver disease)						
RBX-004	Neuro (neurodegeneration, chronic pain)						

REFERENCES: 1. World Health Organization. Key Facts. Published October 20, 2023. Accessed January 13, 2025. Available: https://www.who.int/news-room/factsheets/detail/mental-health-of-older-adults#:~:text=Overview,conditions%20at%20the%20same%20time October 20, 2023. **2.** Newman P. Longevity Technology®. Bank of America analysts predict Longevity to be the opportunity of the decade. Published July, 2019. Accessed January 13, 2025. Available: https://longevity.technology/news/bank-ofamerica-analysts-predict-longevity-to-be-the-opportunity-of-the-decade/ **3.** https://longevity.technology/news/targeting-cellular-senescence-is-a-potential-127b-market/ **4.** https://matchtrial.health/en/how-long-does-it-take-to-develop-a-new-drug/ **5.** Data presented by Marco Quarta, PhD, at Advancing Innovation in Dermatology, Dermatology Summit 2025. **6.** Vitari AC, Fuhrmann H, Moreno O, Quarta M. 799 A novel mouse model for chronic skin fibrosis induced by mitomycin C. J Invest Dermatol. 2024; 144, Issue 8,Supplement (conference abstract), Page S139. **7.** Hamilton RT, Walsh ME, Van Remmen H. Mouse Models of Oxidative Stress Indicate a Role for Modulating Healthy Aging. J Clin Exp Pathol. 2014. Suppl 4: doi:10.4172/2161-0681.S4-005. **8.** Data on file, Rubedo Life Sciences. Sunnyvale, CA 94085

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