Technology Transfer Brief

KOREA UNIVERSITY SEJONG CAMPUS

A Novel Solution to Cellular Senescence for Next-Generation Anti-Aging Applications

Medicinal Chemistry Laboratory

College of Pharmacy, Korea University (Sejong Campus)

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Technology Transfer Brief

A Novel Solution to Cellular Senescence for Next-Generation Anti-Aging Applications

Content

01 Cellular Senescence Is a Metabolic State Problem

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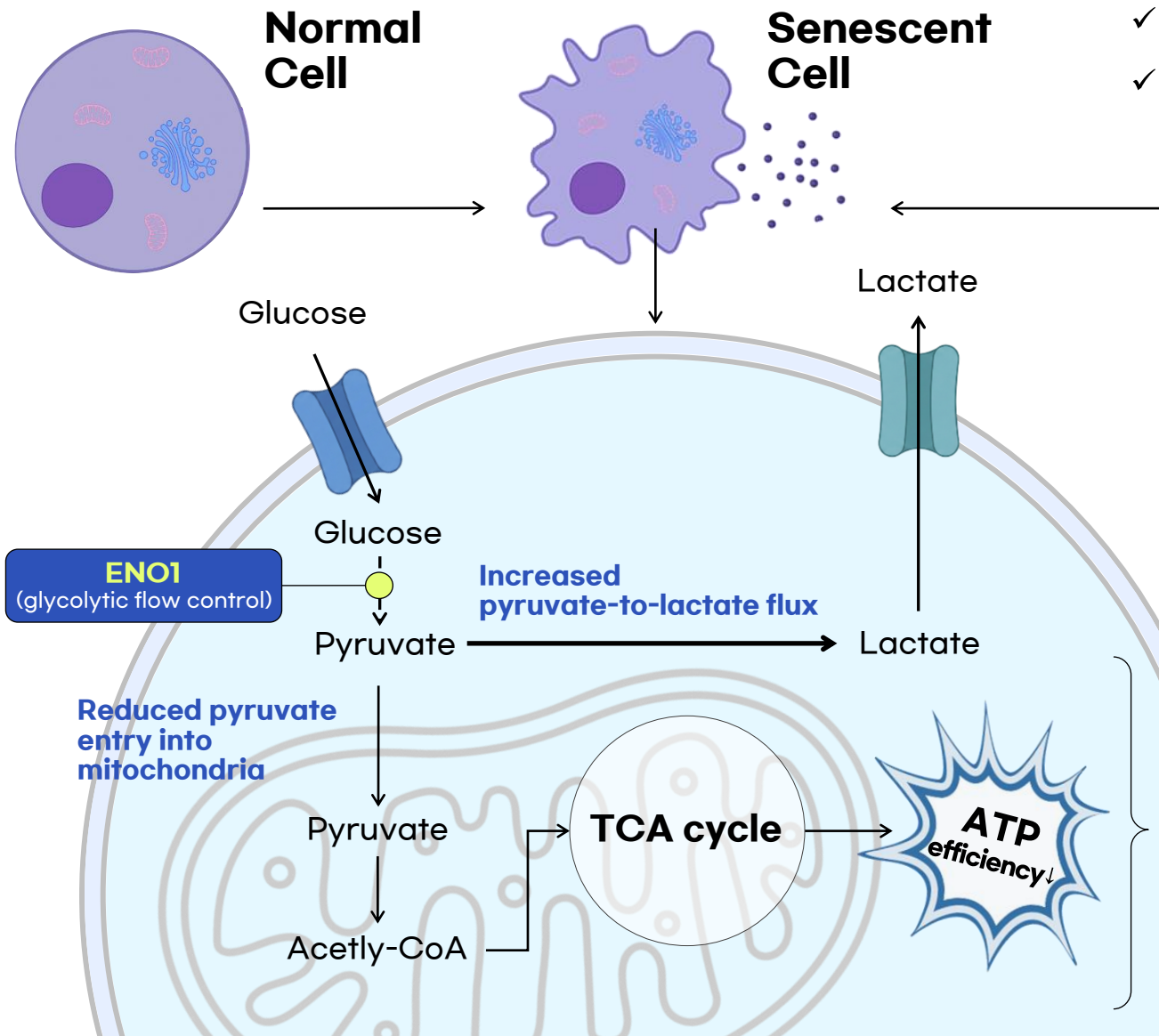
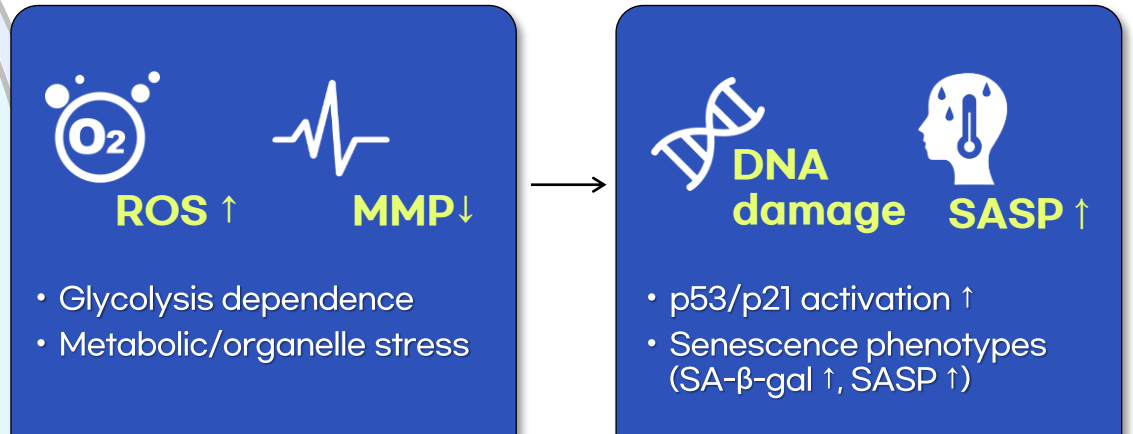


✓ **State-based intervention ⇒ Metabolic rebalancing**

✓ **Key enabler ⇒ ENO1-mediated glycolytic flow control**

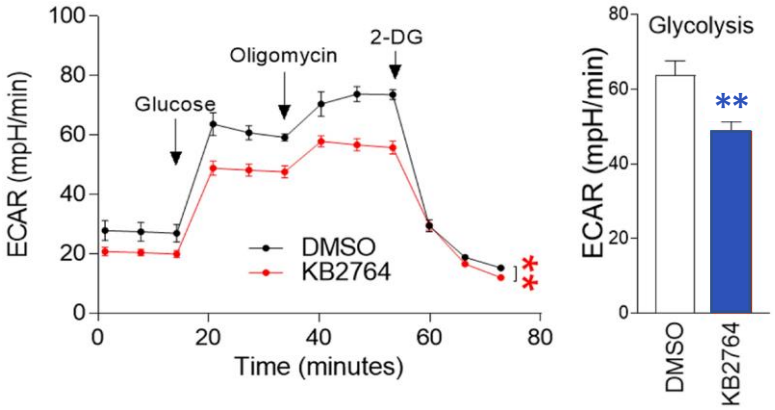
Self-reinforcing senescence

- Cellular senescence reflects a **pathological metabolic imbalance** marked by mitochondrial dysfunction and glycolytic overdependence.
- Senescence-focused strategies restore **metabolic flexibility** and **cellular homeostasis** by targeting the underlying cellular state.

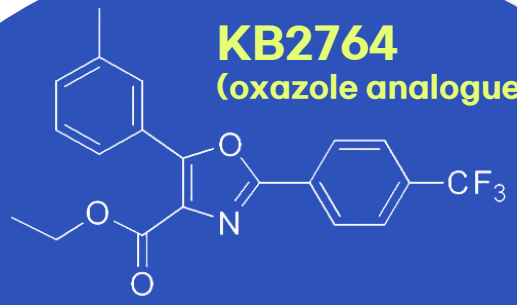


02 Technology Overview

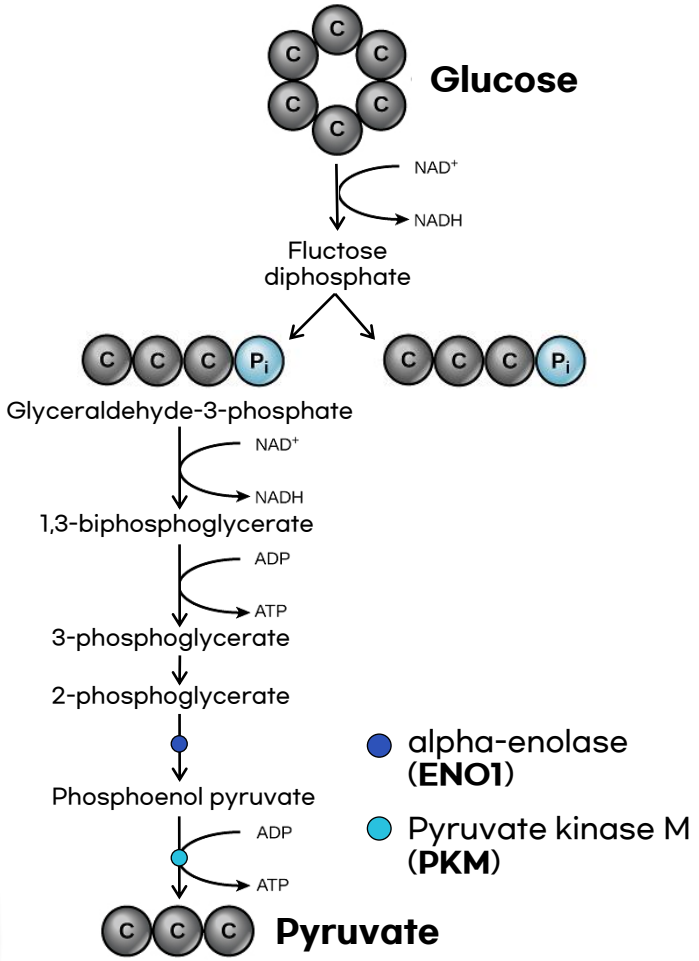
- ✓ **Metabolic reprogramming :** State-level correction of senescence through ENO1-mediated glycolytic flux modulation
- ✓ **Functional impact :** ① **Glycolytic dependence ↓**, ② **Mitochondrial energetics ↑**, ③ **Senescence phenotypes attenuated**



KB2764
(oxazole analogue)

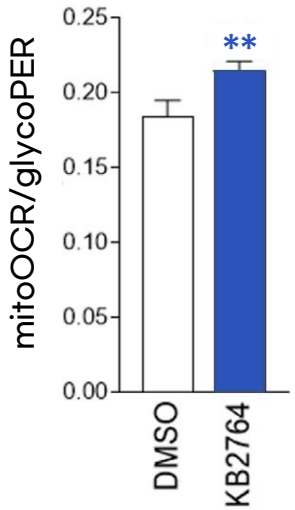


- KB2764 targets ENO1 to control glycolytic flux.
- This control restores metabolic balance in senescent cells.

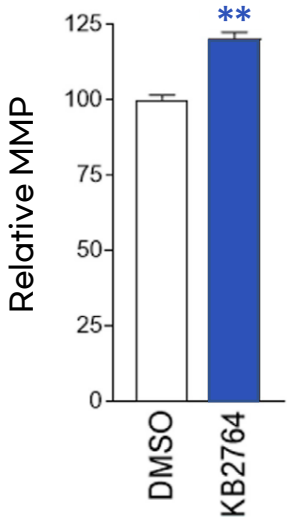


- KB2764 normalizes the dysregulated metabolic state of senescent cells by restoring mitochondrial-centered energy metabolism.
- This restoration is supported by coordinated improvements in mitochondrial respiratory and energetic parameters.

❶ mitoOCR/glycoPER Ratio



❷ Mitochondrial Membrane Potential



03 Key Features & Advantages

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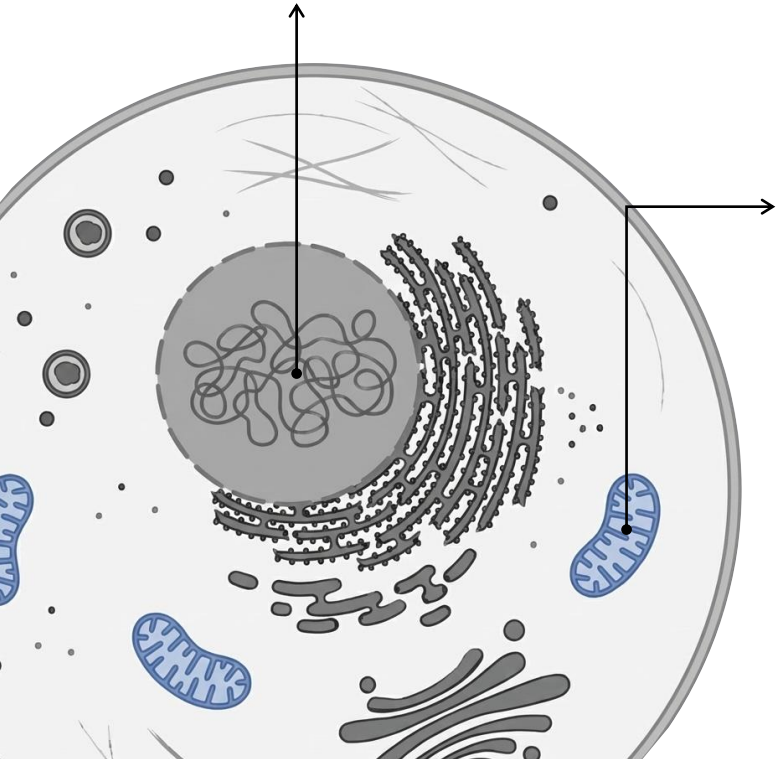
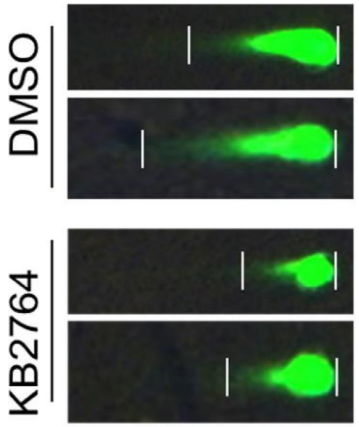
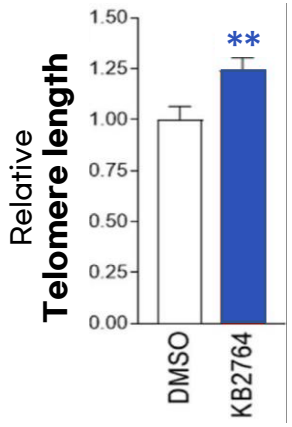
Nucleus

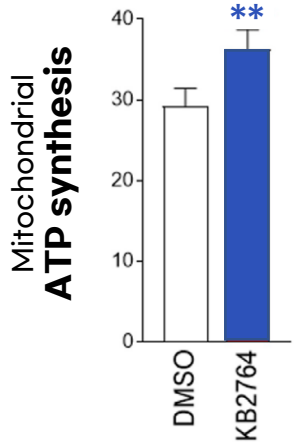
- **DNA tail length** ↓ : Reflects reduced nuclear DNA damage associated with oxidative stress.
- **Telomere length** ↑ : Indicates stabilization of telomere shortening and improved genomic stability during cellular aging.

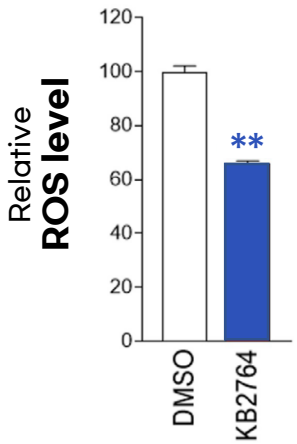


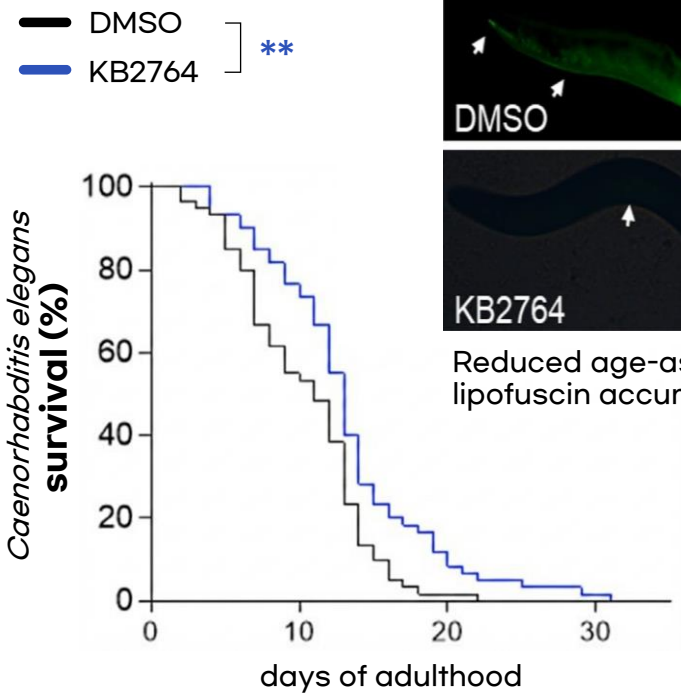


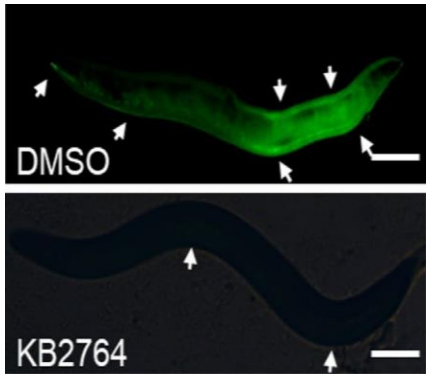


Mitochondria









Reduced age-associated lipofuscin accumulation

- **Extends the lifespan** : Significantly prolongs organismal lifespan by reducing age-associated mortality risk.
- **Improves healthspan (body bends)** : Preserves locomotor activity during aging, indicating delayed functional decline.

04 Strategic Business Opportunities

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- ✓ **Business Vision :** A new solution to **cellular senescence**, unlocking next-generation anti-aging business opportunities
- ✓ **Engagement Model :** Open to **technology licensing** and **collaborative R&D** partnerships

Collaborative development opportunities

❶ Compound library expansion

- Optimized lead compounds, SAR mapping, and efficacy-mechanism correlation data.
- **Partners** : Medicinal chemistry teams, synthetic chemistry research institutes.

❷ Preclinical development

- MPK/ADME profiling, formulation feasibility, early safety assessment, and rodent proof-of-concept studies.
- **Partners** : CROs, pharmaceutical development teams.

❸ Standardization of efficacy and biomarker protocols

- CRO-ready mitochondrial and aging-related efficacy evaluation platforms.
- **Partners** : CROs, bioanalytical research organizations.

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Medicinal Chemistry Lab
(College of Pharmacy)

Collaborative R&D
* Korean Government-Funded Programs

IP license (Option/Exclusive)

Commercialization co-development

Preclinical co-development

Nutraceuticals & Cosmetics

- Health functional food / cosmeceutical companies
- Expansion of anti-aging and metabolic health product portfolios.
- Development of anti-aging skincare products

Pharmaceuticals

- Pharmaceutical companies, biotech companies
- Development of first-in-class or differentiated therapies targeting mitochondrial dysfunction and aging-related diseases

Intellectual Property

- Title : ANTI-AGING COMPOSITION COMPRISING OXAZOLE ANALOGUE AS ACTIVE INGREDIENT
- Patent : PCT/KR2024/012827, KR 10-2023-0113722
  (Date : Aug. 29, 2023)

CONTACT US

For inquiries regarding technology licensing, collaborative R&D, or partnership opportunities, please contact :

- Technology Transfer Agency : **IBU Inc.**
- Email : **kimth@ibubiz.kr**

Partnering to unlock new business opportunities through innovation.

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