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Mechanistic targeting of advanced glycation end-products in agerelated diseases

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# ACCEPTED MANUSCRIPT

### Mechanistic targeting of advanced glycation end-products in agerelated diseases

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#### Outline

- 1. Introduction: AGE formation in biology
- 2. Detoxification pathways: keeping the AGE concentration low
- 3. Biology of glycation related disease: intracellular and extracellular
- 4. Pharmaceutical treatments of AGE accumulation
- 5. New directions and approaches
- 6. Conclusions and outlook

#### Highlights

- AGE precursors are detoxified enzymatically via Glyoxalase-like enzymes.
- Once formed, AGEs are removed via ubiquitin and autophagy proteolytic systems.
- AGEs act intracellularly and extracellularly to damage proteins and cells.
- Pharmaceutical approaches to diminish AGE accumulation are not yet clinically successful.
- Nutritional and dietary approaches to counter AGE accumulation and AGErelated disease are promising, low-cost, and achievable.

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