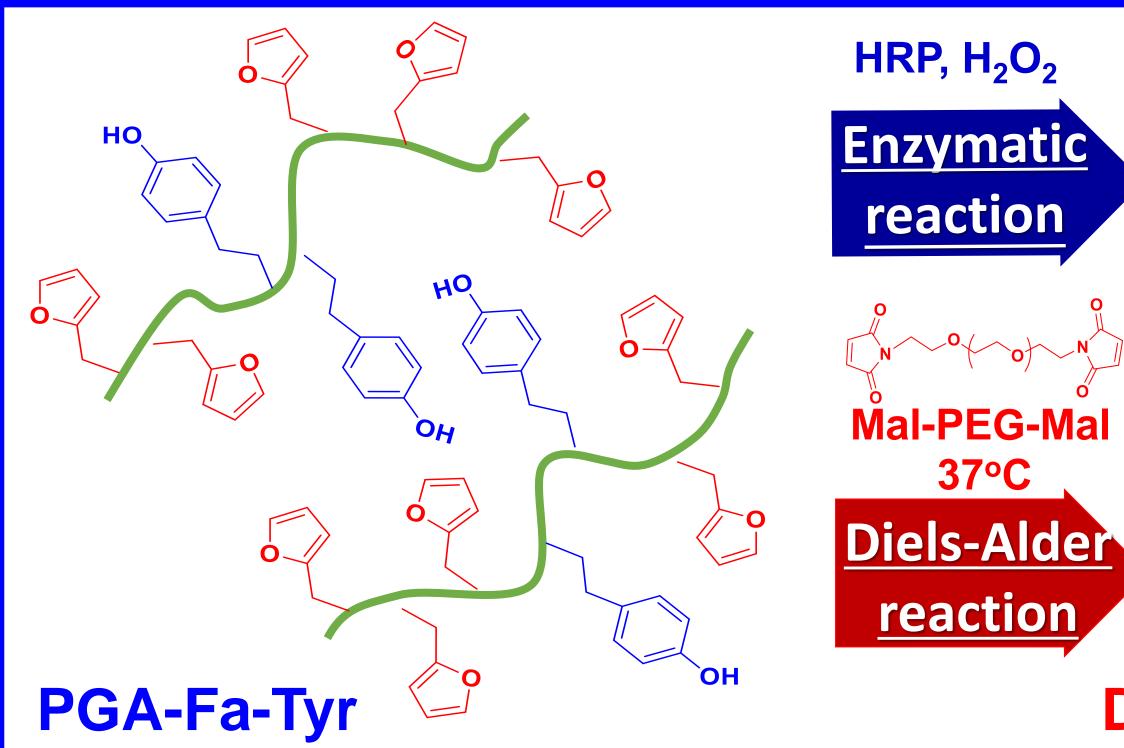


Development of injectable dual stimulus-responsive hydrogel using biodegradable poly(y-glutamic acid)

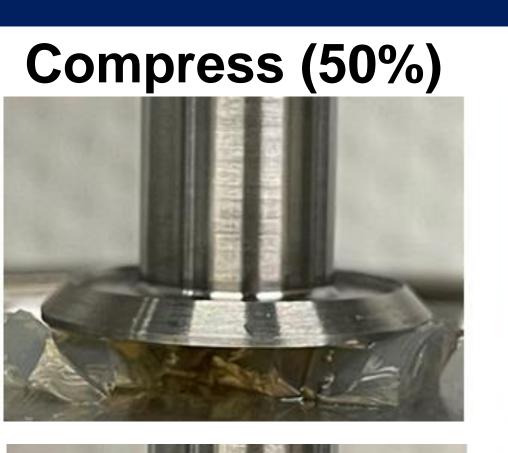
Injectable scaffold Polyglutamic acid (PGA) Without surgical Ο Polymer solution Cosmetic Cell) operation COOH Food • Biodegradable Injection Scaffold Regeneration • Biocompatible Scaffold into tissue formation • Non-toxic degradation defect Cell growth Industrial Water retention use Gel strength and gelation time are important Thickening

Design of dual crosslinking PGA hydrogel with rapid injectability and controllable mechanical properties



Compression and release processes of hydrogels

Approach Eny Env

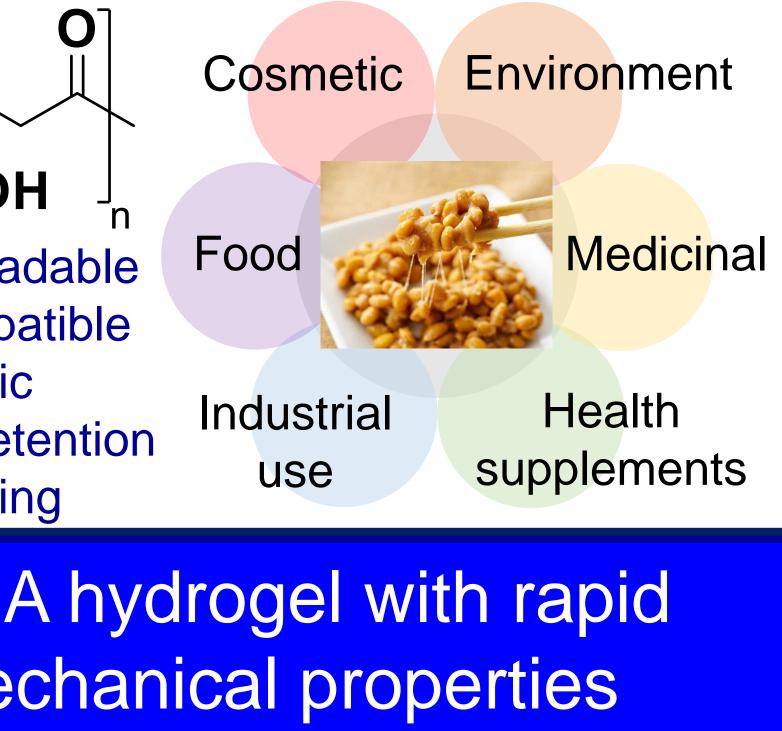


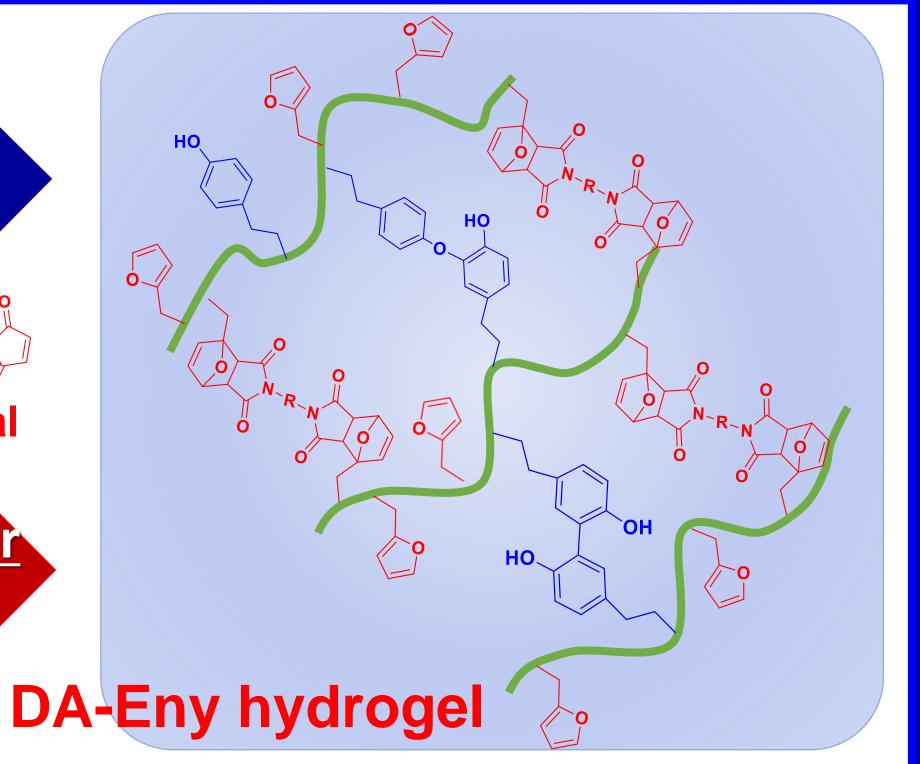




Yu-I Hsu¹, Meng Wei¹, Taka-Aki Asoh¹, Moon-Hee Sung² and Hiroshi Uyama¹

¹Department of Applied Chemistry, Osaka University, Japan. ²Department of Advanced Fermentation Fusion Science and Technology, Kookmin University, Korea.





Release

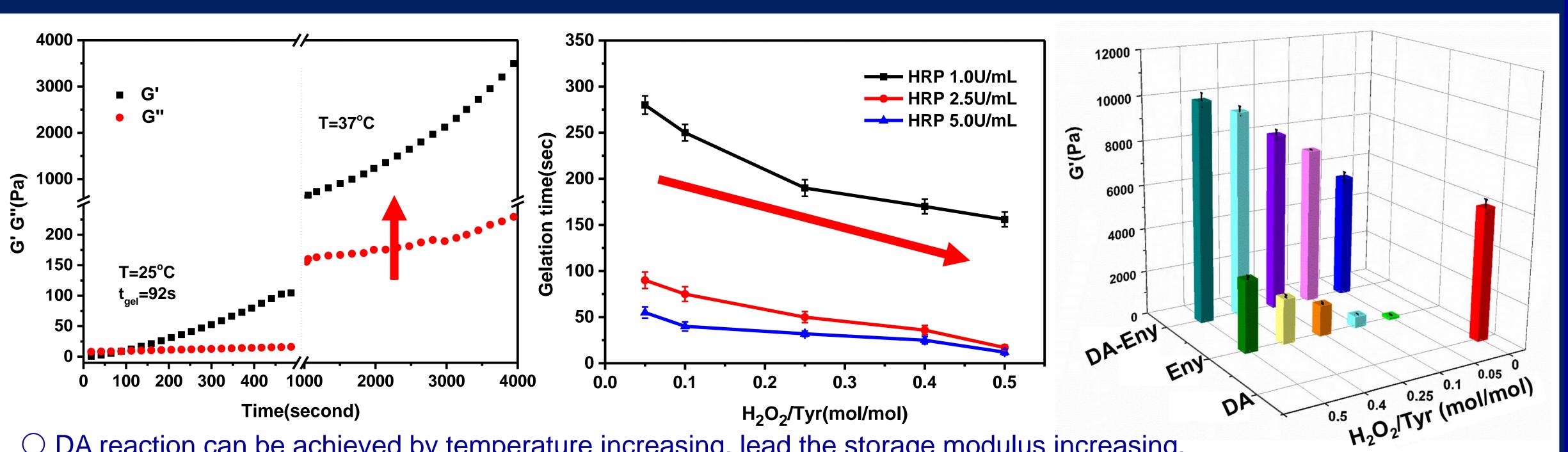


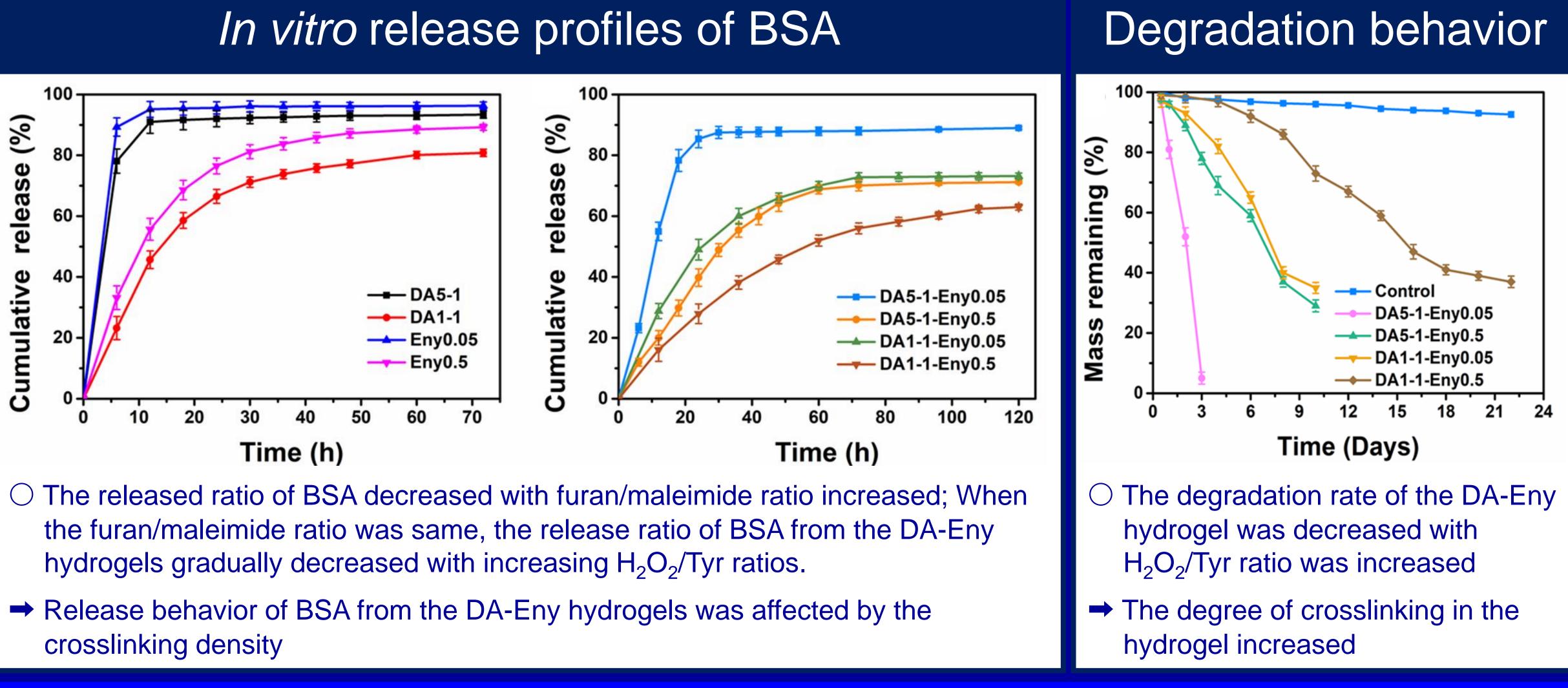
Eny only

- X Poor mechanical properties
- X Easily broken

Diels-Alder reaction

O Maintained the original shape after release







Gelation time and gel strength

 \bigcirc DA reaction can be achieved by temperature increasing, lead the storage modulus increasing. \bigcirc Gelation time and storage modulus can be adjusted by changing the concentration of H₂O₂ and HRP

Conclusion

An injectable polypeptide hydrogel was prepared by integrating DA click chemistry and enzymatic crosslinking. The mechanical properties can enhanced by introducing DA chemistry, and the gelation time can easily adjust by changing the concentration of HRP and H_2O_2 .

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