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Development of multi-lock polymers with complete biodegradability and practical toughness

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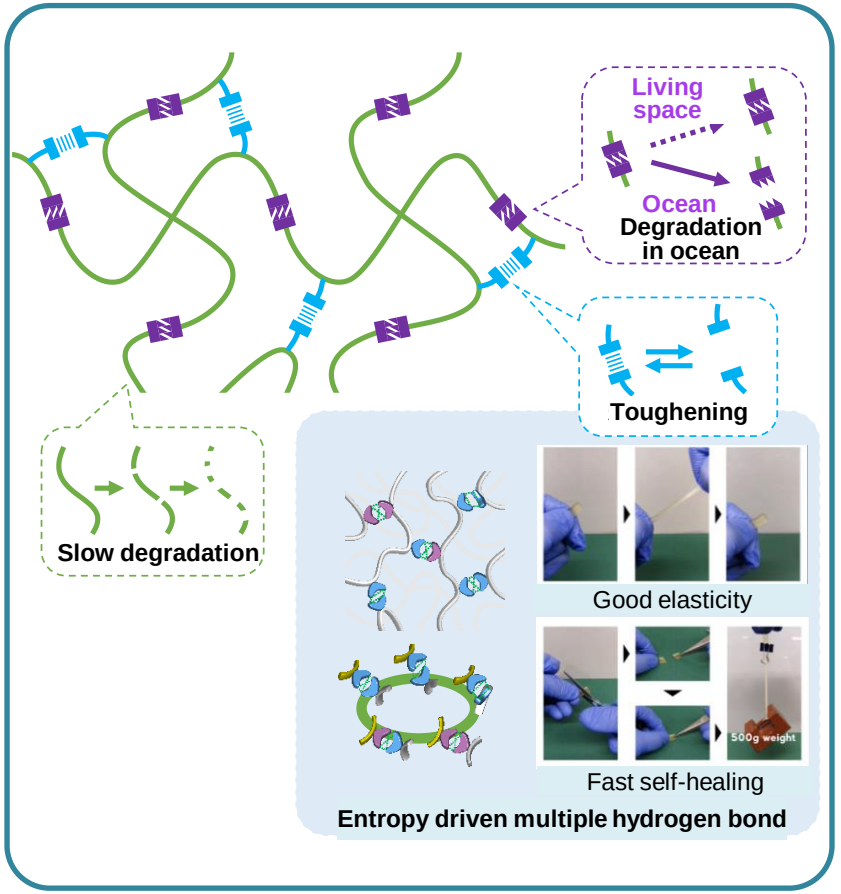
We try to realize multi-lock polymers with complete biodegradability and practical toughness by combining the following three strategy:

- **"Low speed degradability" for complete degradation:** Developing polymers that are stable during practical use but quickly degraded after oligomerization.
- **"Multi-lock degradation mechanism":** Introducing to polymer main chain degradable bonds that break only when receiving multi-stimuli for unlock at the same time.

"Toughenig" for practical use: Introducing dynamic bonds and/or controlling higher order structure to toughen polymers.

We also develop the concept of **"Entropy driven multiple hydrogen bond"** proposed by our group to realize good elastic properties only with physical crosslinks.



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