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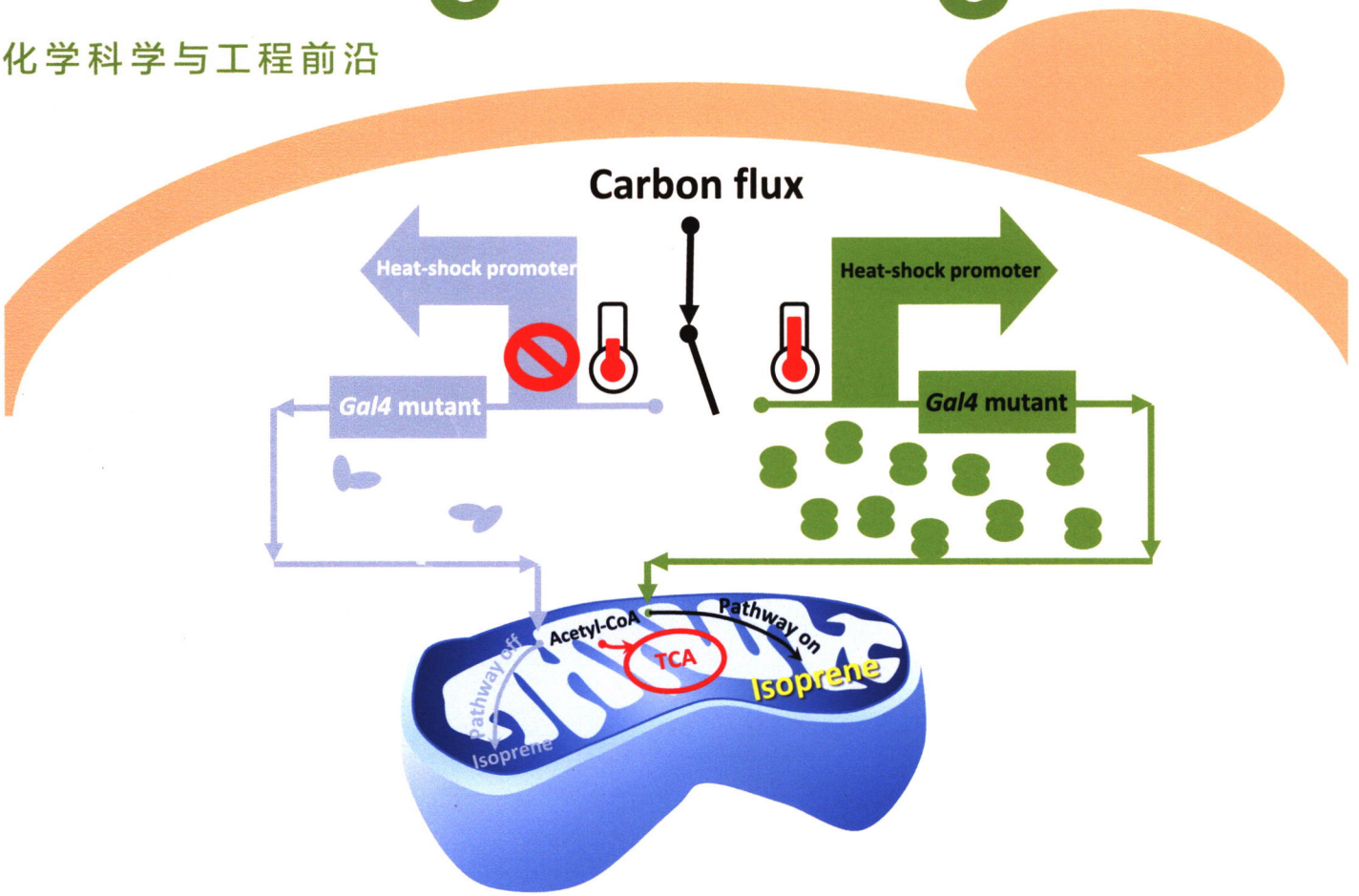

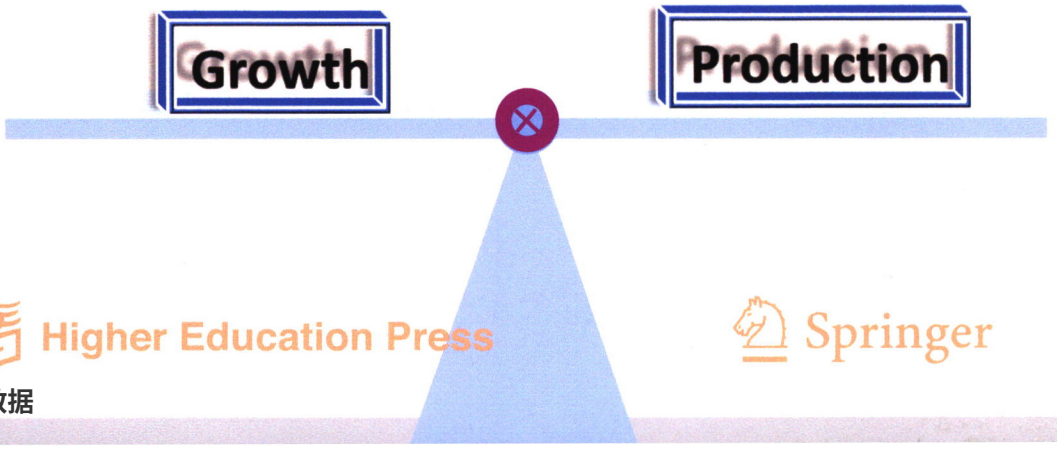

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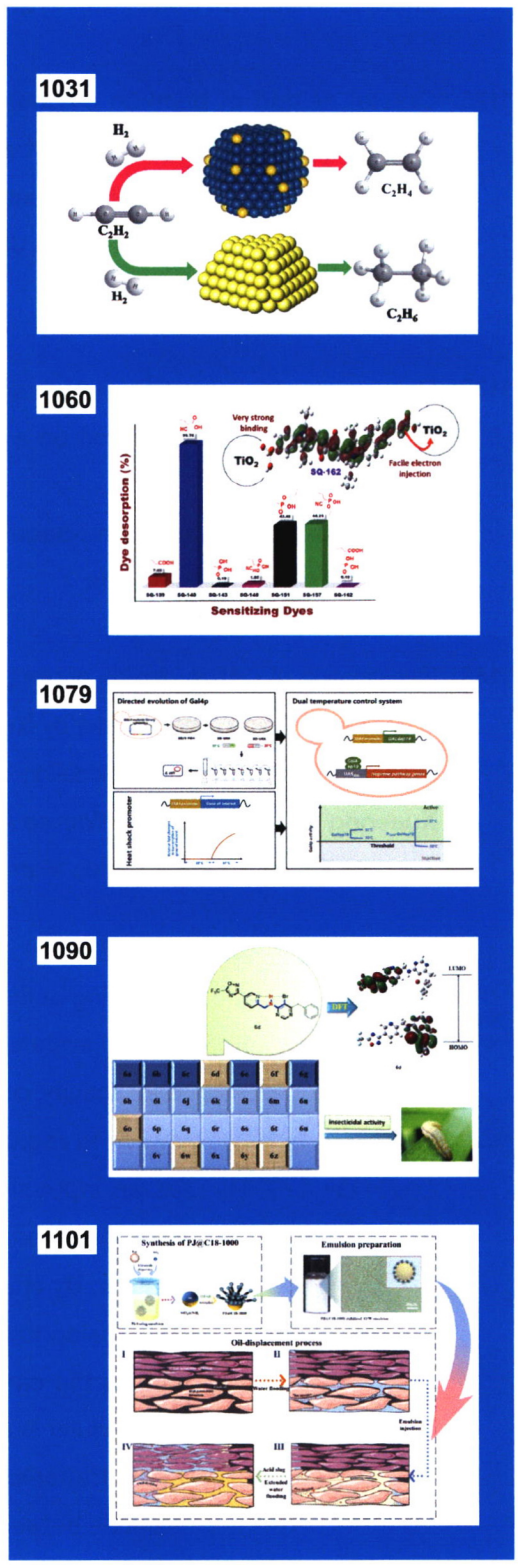

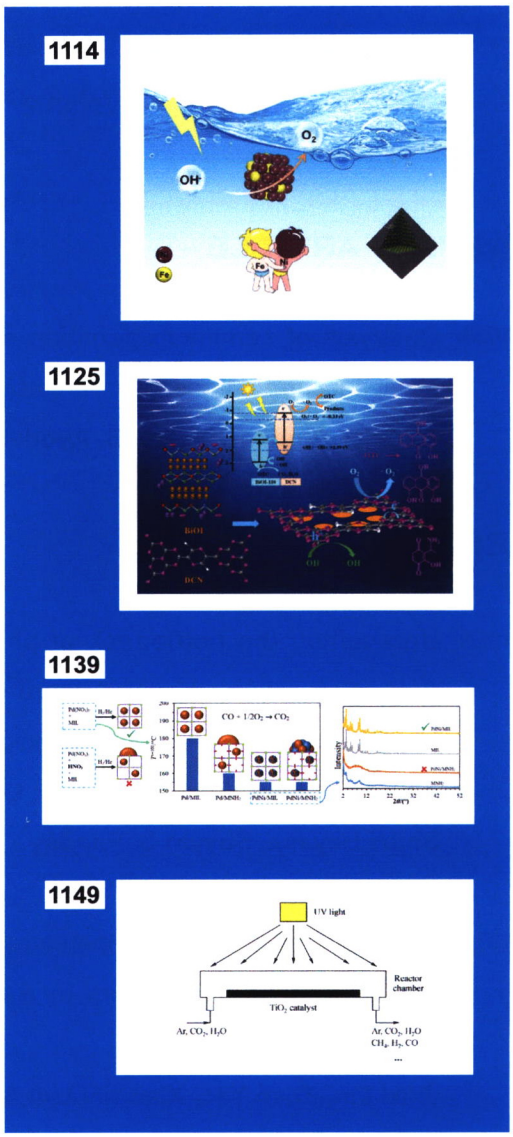

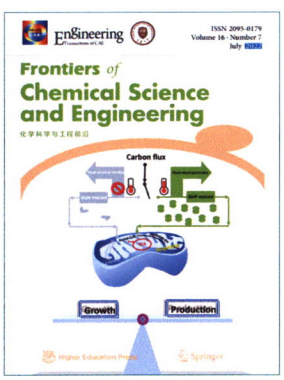

COVER

Targeting at the conflict between growth and production, a dual temperature control system is developed for yeast engineering based on the expression and activity control of the transcriptional activator *Gal4*, which acts as a switch to regulate the direction of carbon flux. Temperature change serves as an input signal to trigger the expression of the *Gal4* mutant under a heat-shock promoter, and meanwhile to activate it due to its cold-sensitive feature. By changing the culture temperature from 30 °C to 37 °C, both the expression level and activity of the *Gal4* mutant are increased, which re-directs the carbon flux from cell growth to product synthesis. In this way, the cellular burden caused by isoprene biosynthesis via a mitochondria-compartmented pathway could be relieved, leading to reconstruction of balance between cell growth and isoprene production. (Jiaxi Lin, Zhen Yao, Xiaomei Lyu, Lidan Ye, Hongwei Yu, pp. 1079–1089)

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