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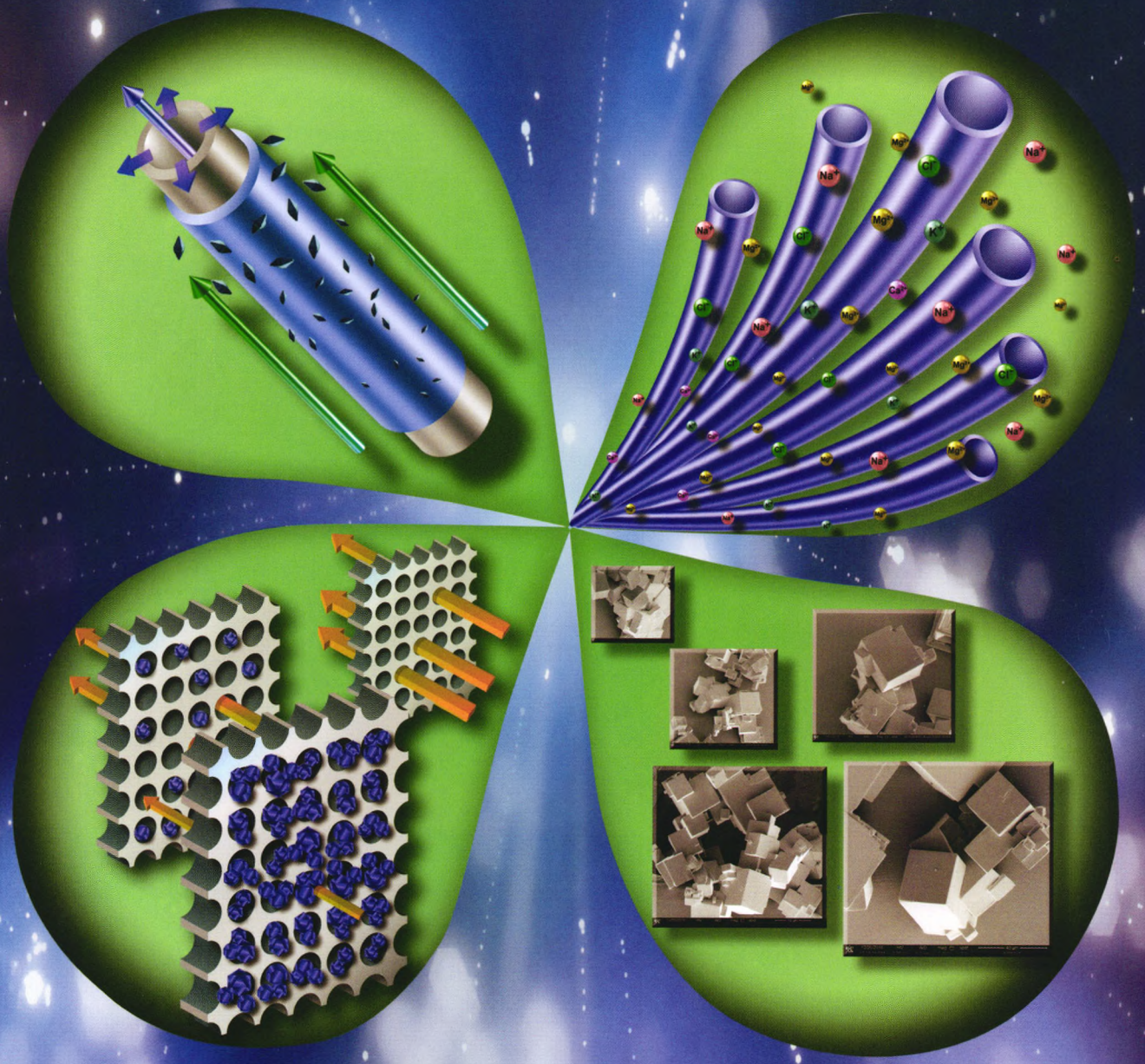

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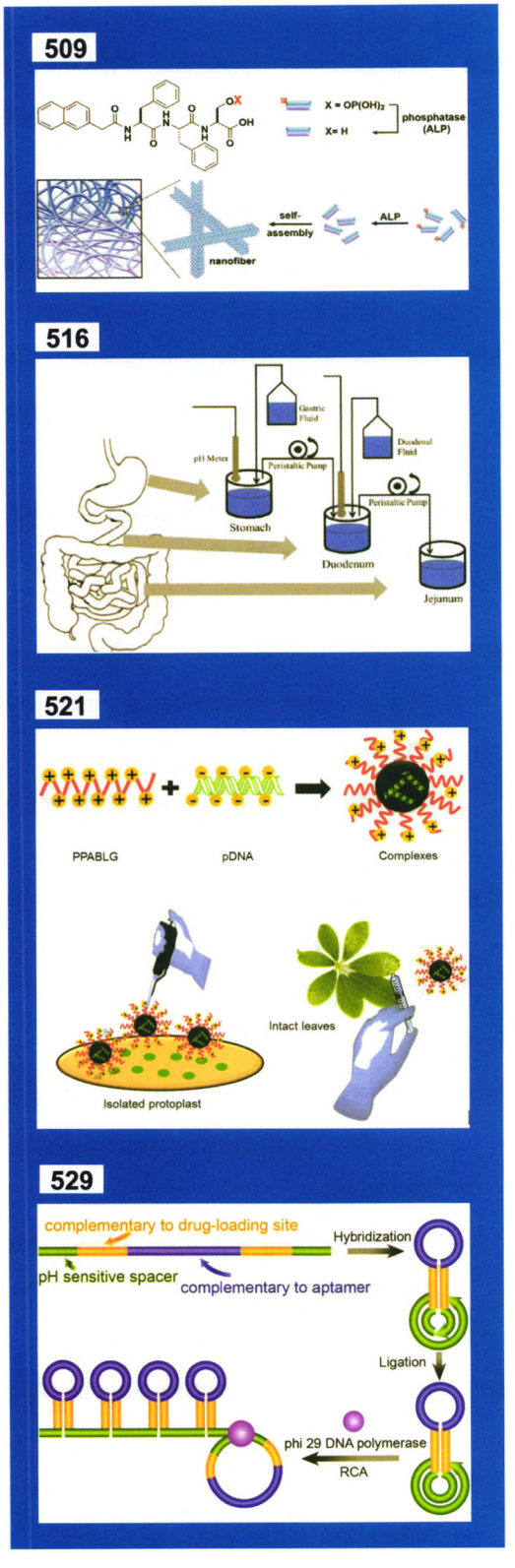
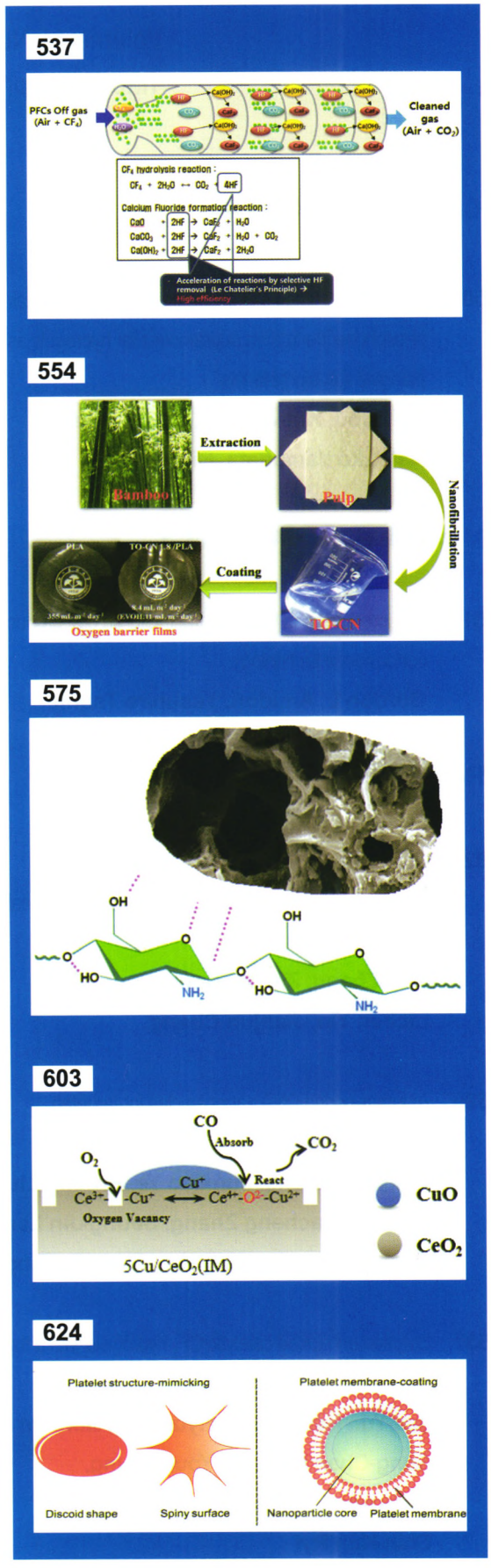
COMMUNICATION

VIEWS & COMMENTS

RESEARCH ARTICLE





REVIEW ARTICLE

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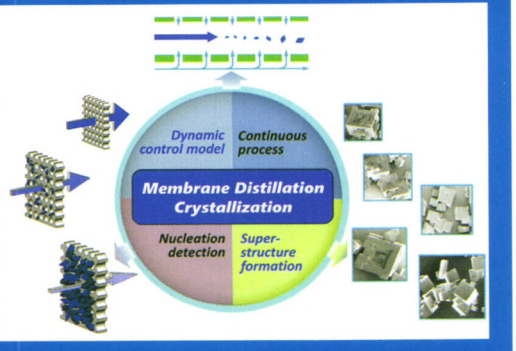

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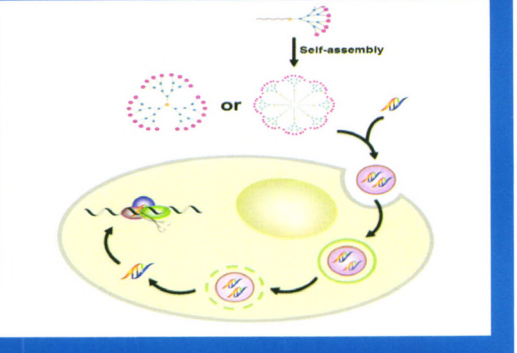

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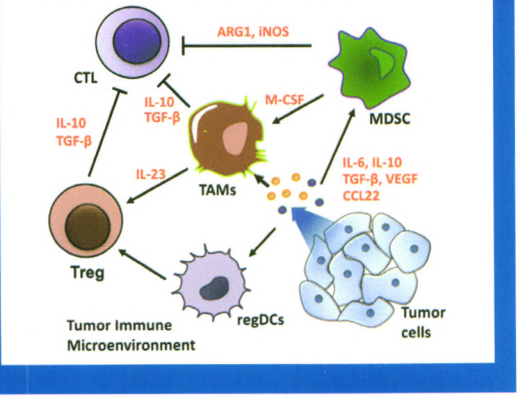

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Cover story

(See Xiaobin Jiang, Linghan Tuo, Dapeng Lu, Baohong Hou, Wei Chen, Gaohong He, pp 647–662)

Development of membrane science and technology gives more inspiration to chemical engineering researchers in variety of fields. Membrane distillation crystallization (MDC) is a promising hybrid separation process that has been applied to seawater desalination, brine treatment and wastewater recovery. In recent years, great progress has been made in MDC including the promotion of nucleation control of crystallization and crystal size distribution modification. The progress is not only shed light on chemical industry, but also biological and pharmaceutical engineering, etc. Membrane assisted approach provides an alternative approach for the controllable and stable the supersaturation degree and nucleation control. In addition, allowing for the potential integrated MDC with other processes, the development of MDC process models and controlling strategies design should be paid intensive attention. By summarizing the most important innovative applications in MDC, which are developed for crystal engineering and pharmaceutical manufacturing, this review is aimed to overview the progress in MDC and outline the future research direction and potential applications.

Xiaobin Jiang, Associate Professor. He received his B.S., M.S. and Ph.D. from Tianjin University in China. He joined Dalian University of Technology in 2012, and promoted to associate professor in 2015. Dr. Jiang' research focus on crystallization control, membrane separation and hybrid process development. He currently serves as associate direct of Engineering Laboratory for Petrochemical Energy-Efficient Separation Technology of Liaoning Province.

Gaohong He, Professor. She received her B.S. from Beijing University of Chemical Technology in China, M.S. and Ph.D. from Dalian Institute of Chemical Physics. She joined Dalian University of Technology in 1993, and promoted to professor in 2001. She and her group focus on membrane science, separation engineering and biomedical engineering. Her honors awarded include Second Class Prizes of the State Scientific and Technological Progress Award (2010), National Science Fund of China for Distinguished Young Scholars (2011), Changjiang Distinguished Professor of the Ministry of Education of China (2013).

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