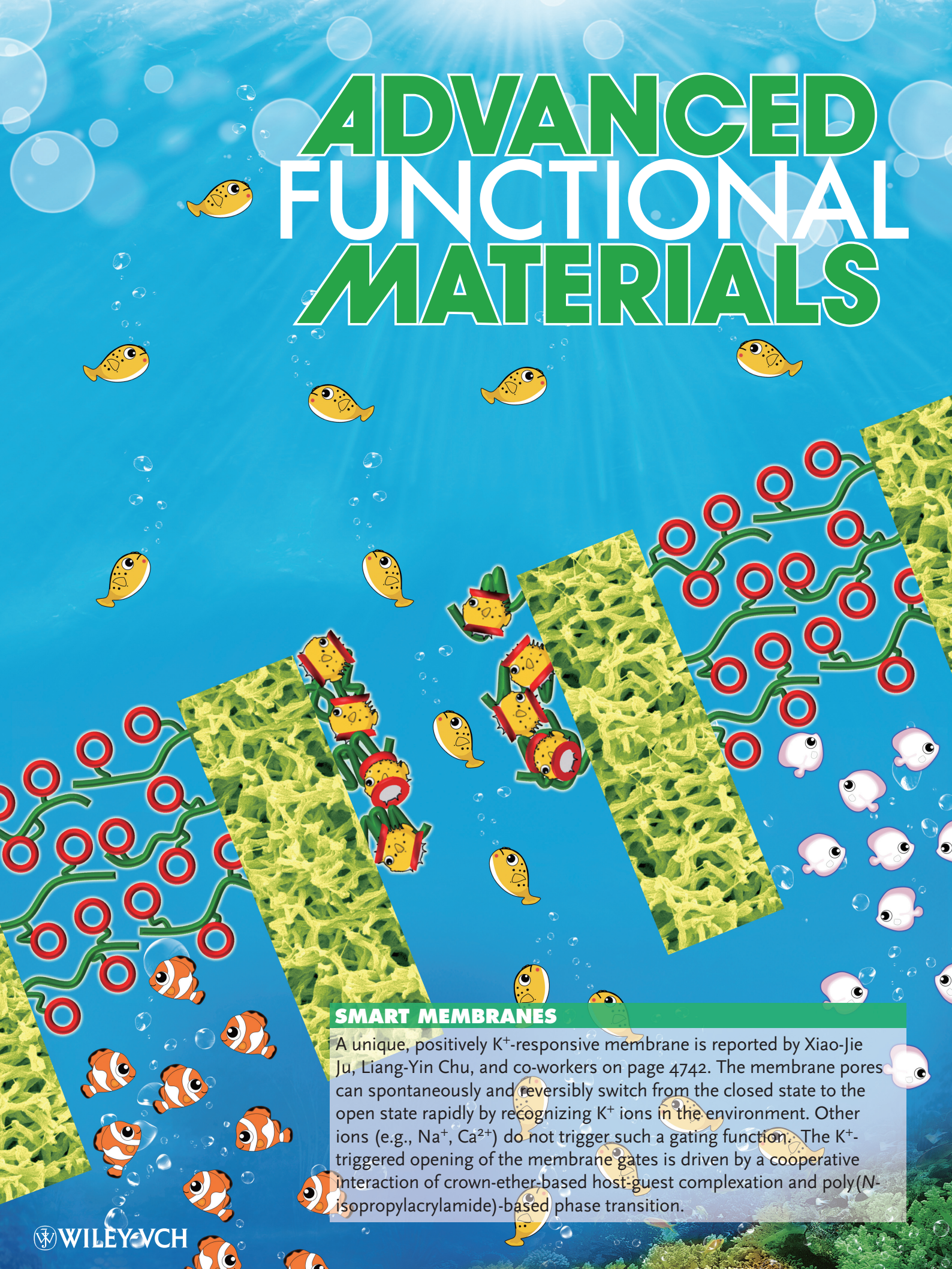


# ADVANCED FUNCTIONAL MATERIALS

The background of the entire page is a vibrant blue underwater scene. It features several cartoonish yellow fish with black spots, orange and white striped clownfish, and small pinkish-white fish. Numerous white bubbles of various sizes are scattered throughout the scene. In the lower right corner, there is a glimpse of a green coral reef. The title 'ADVANCED FUNCTIONAL MATERIALS' is prominently displayed at the top in large, bold, green and white letters.

## SMART MEMBRANES

A unique, positively  $K^+$ -responsive membrane is reported by Xiao-Jie Ju, Liang-Yin Chu, and co-workers on page 4742. The membrane pores can spontaneously and reversibly switch from the closed state to the open state rapidly by recognizing  $K^+$  ions in the environment. Other ions (e.g.,  $Na^+$ ,  $Ca^{2+}$ ) do not trigger such a gating function. The  $K^+$ -triggered opening of the membrane gates is driven by a cooperative interaction of crown-ether-based host-guest complexation and poly(*N*-isopropylacrylamide)-based phase transition.