That’s life. Dissipative assembly of membrane transport systems.

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Living creatures - people, plants, bacteria - have two key characteristics: we continually consume energy, and we burn that energy to maintain the organized structures of our cells. Energy flow to maintain structure, described as dissipative assembly, allows our cells to perform myriad functions in complex reaction networks. Inspired by nature, supramolecular chemists have had considerable success in creating self-assembled structures near equilibrium. Some of these even have interesting functions provided we provide additional energy. This seminar will discuss our recent efforts to create signs of life in transport systems that are dissipative; they consume energy, self-assemble to an ion-transporting structure, cease to function when the energy input is consumed, and revive when fed. They also produce waste – just like in real life.