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Group of Biomembrane Functions Seminar

※アドバンス生命理学特論です
Topics in Advanced Biological Science

Assembly of the Bacterial Flagellar Motor's Rotor and Filament

Lecturer : Matthew Baker

The University of New South Wales Sydney

Date : July 11th, 3:00 p.m. - 4:00 p.m.

Venue : Room G101, Building G

Dr Matt Baker is a Scientia Research Fellow in the School of Biotechnology and Biomolecular Sciences at UNSW Sydney and an affiliated researcher at the EMBL Australia Node for Single Molecule Science at UNSW Sydney.

Matt completed his DPhil at Oxford University under Dr Richard Berry as a John Monash Scholar studying the bacterial flagellar motor that makes nearly all bacteria swim. Matt demonstrated the novel domain-swap mechanism for BFM rotor assembly in 2016 (NSMB 2016), and he has focussed on how simple subunit interactions govern assembly of complex architectures, including the filament (eLife 2017, Nat. Comm 2018). The next question is how this complexity emerged. To begin addressing this, Matt's nascent group at UNSW plans to look at how ion selectivity changes using directed evolution to examine the evolutionary landscape that constrains the adaptation of the motor.

Matt looks not only at proteins that generate force (molecular motors) but also at proteins that sense force (mechanosensitive ion channels). To do this he combines artificial lipid bilayer techniques, electrophysiology and DNA origami to reconstitute and test mechanosensitive channels in custom in vitro systems.