NATURE NEWS BLOG

Nobels 2013: Physiology or Medicine

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The 2013 Nobel Prize in Physiology or Medicine has been awarded to James Rothman, Randy Schekman and Thomas Südhof.

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The three take the prize for "their discoveries of machinery regulating vesicle traffic, a major transport system in our cells", the Nobel Assembly says. Vesicles are structures that can transport molecules around cells and deliver them to where they are required.

Schekman, of UC Berkeley, identified genes essential to vesicle traffic while Rothman, of Yale University in New Haven, Connecticut, worked out how vesicles transfer their cargo. Südhof, currently based at Stanford University, finished the picture by detailing how vesicles are signalled to release their cargo, the prize committee reports.

"Through their discoveries, Rothman, Schekman and Südhof have revealed the exquisitely precise control system for the transport and delivery of cellular cargo. Disturbances in this system have deleterious effects and contribute to conditions such as neurological diseases, diabetes and immunological disorders," says the Nobel statement on the award.

Rothman and Schekman previously won the 2002 Lasker Prize for their work in membrane trafficking. In 2010 Südhof and Rothman shared a Kavli prize with Richard Scheller of Genentech, for work on signalling between brain cells.

The award is "long overdue," says Bill Wickner, a molecular biologist at Dartmouth University in Hanover, New Hampshire. "I heard from Randy [Schekman]. He was happily in shock, but delighted." Wickner says the award "reflects a fundamental problem of cell biology that was approached by these investigator in 3 very different ways." Schekman screened mutated strains of yeast and identified dozens of proteins involved in vesicle trafficking. Rothman, meanwhile, used cell extracts to identify proteins needed for membrane vesicles to fuse.

All three laureates are previous winners of the Lasker Award, which is sometimes called the mini-Nobel. Südhof won

it last year (with Richard Scheller, at the biotechnology company Genentech) for their work on the release of neurotransmitters. While, Schekman and Rothman shared the award in 2002.

With additional reporting by Ewen Callaway

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