Nature Reviews Molecular Cell Biology | AOP, published online 17 October 2012; doi:10.1038/nrm3465

In the news

CHEMICAL FORCES

The 2012 Nobel Prize in Chemistry has been awarded to Robert Lefkowitz and Brian Kobilka for their work on G protein-coupled receptors (GPCRs). The prize is a "fantastic recognition for helping us further understand the intricate details of biochemical systems in our bodies," said Bassam Z. Shakhashiri, President of the American Chemical Society (*The Boston Globe*, 10 Oct 2012).

In 1968, Lefkowitz began working with radioactivity to 'track' cell membrane receptors. At that time, although scientists understood the physiological effects of hormones such as adrenaline, many remained sceptical about the presence of cellular receptors that coordinate responses to external stimulation. After proving the existence of these receptors, including β-adrenergic receptor, Lefkowitz and his team set out to isolate and purify them from cellular membranes to further understand how they function.

In the 1980s, Kobilka joined the Lefkowitz laboratory as a postdoctoral fellow and isolated the gene that encodes β-adrenergic receptor. Remarkably, they found that the receptor belongs to a large protein family — now known as GPCRs.

Last year, Kobilka and others made another revolutionary breakthrough — by crystallizing the receptors, they provided three-dimensional snapshots of the receptor in action. This "work in determining the structure of GPCRs has revolutionised our understanding of how they work as small 'molecular machines'," said Mark Sansom, University of Oxford, UK (*bbc.co.uk*, 10 Oct 2012).

The prize acknowledges their groundbreaking research that has ultimately transformed the lives of many. "Around half of all medications act through these receptors, among them beta blockers, antihistamines and various kinds of psychiatric medications," reports the Nobel Committee (10 Oct 2012).

Bryony Jones

© 2012 Macmillan Publishers Limited. All rights reserved