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Molecule building work wins Nobel

The scientists are based in the US and Japan

Three scientists have shared this year's Nobel Prize in Chemistry for developing new ways of linking carbon atoms together.

The Nobel was awarded to Professors Richard Heck, Ei-ichi Negishi and Akira Suzuki for innovative ways of developing complex molecules.

The chemical method developed by the researchers has allowed scientists to make medicines and better electronics.

The Nobels are valued at 10m Swedish kronor (£900,000; 1m euros; $1.5m).

The Royal Swedish Academy of Sciences said the award honours the researchers' development of "palladium-catalysed cross couplings in organic systems".

The academy said it was a "precise and efficient" tool that is used by researchers worldwide, "as well as in the commercial production of for example pharmaceuticals and molecules used in the electronics industry".

Professor David Phillips, President of the Royal Society of Chemistry, said these metal-based "coupling" reactions had led to "countless breakthroughs".

He added: "The Heck, Negishi and Suzuki reactions make possible the vital fluorescent marking that underpins DNA sequencing, and are essential tools for synthetic chemists creating complex new drugs and polymers."

Russian-born Andre Geim, 51, and Konstantin Novoselov, 36, of the University of Manchester, UK, prize Tuesday for groundbreaking experiments with graphene, an ultrathin and super-strong material.

The prizes also cover chemistry, medicine, literature, peace and economics.