

Australia's Nobel Laureates

Australia has the highest per capita number of Nobel Prize winners, 12 in all, with 11 prizes in the science categories and one in literature. They are:

William and Lawrence Bragg (father and son, SA), Physics, 1915

The Braggs founded a new branch of science of the greatest importance and significance: the analysis of crystal structure by means of x-rays. They devised a method for analysing the three-dimensional structure of crystals, atom by atom. Lawrence worked out the mathematics and William invented the instrument – the x-ray spectrometer.

Howard Florey (SA), Physiology or Medicine (shared), 1945

Howard Florey, Ernst Chain and Alexander Fleming were awarded the Nobel Prize for the successful small-scale manufacture of penicillin from the liquid broth in which it grows. Fleming had discovered penicillin in 1928 but the active substance was not isolated until 1939.

Frank MacFarlane Burnet (Vic), Physiology or Medicine (shared), 1960

Burnet and Sir Peter Medawar were awarded the prize for the discovery of acquired immunological tolerance. This understanding of the basis of immunity has become vital in the field of organ transplants. Prior to their work it was thought that immunity was in some way related to the nature of an individual's blood.

John Eccles (Vic), Physiology or Medicine (shared), 1963

Sir John Eccles', Alan Hodgkin's and Andrew Huxley's work on the brain and central nervous system reshaped science's understanding of neurological processes. Eccles' work concerned the electrical changes which the nerve impulses elicit when they reach another nerve cell.

Aleksandr Prokhorov (Qld), Physics (shared), 1964

Prokhorov and his colleagues Nikolay Basov and Charles Townes won the Nobel Prize for their work in quantum electronics and the development of a device that generated an intense beam of pure microwave radiation called a 'maser'. Applications for this research can be found today in compact discs and modern surgery.

Bernard Katz (naturalised), Physiology or Medicine (shared), 1970

Shared with Ulf von Euler and Julius Axelrod. Katz was known for his work on nerve biochemistry and the pineal gland. He uncovered fundamental properties of synapses, the junctions across which nerve cells signal to each other and to other types of cells. New substances for the treatment of high blood pressure and Parkinson's disease are the results of an increasing understanding of the mechanisms of chemical transmissions.

Patrick White (NSW), Literature, 1973

White won for his novel, *The Eye of the Storm*, for what the Swedish academy describes as “an epic and psychological narrative art which has introduced a new continent into literature.”

John Cornforth (NSW), Chemistry (shared), 1975

Cornforth and Vladimir Prelog’s award was for their complex work on the stereochemistry of enzyme-catalysed reactions.

Peter Charles Doherty (Qld), Physiology or Medicine (shared), 1996

Doherty shared his prize with Rolf Zinkernagel for their research into immune responses. They discovered that white blood cells must recognize both an invading virus and certain “self” molecules in order to kill the virus-infected cells. This finding advanced research in many areas, including strengthening immune response against diseases and diminishing auto-immune reactions in inflammatory diseases.

J. M. Coetzee (naturalised in 2006), Literature, 2003

The South-African born author emigrated from Cape Town to Adelaide in 2002. He won the literary prize in 2003 for his body of work. The Swedish Academy described Coetzee as an author “who, in innumerable guises, portrays the surprising involvement of the outsider.”

Barry J. Marshall (WA) and J. Robin Warren (SA), Physiology or Medicine, 2005

For their discovery that stomach ulcers and gastritis are caused by the bacterium, *Helicobacter pylori*. Thanks to the pioneering discovery by Marshall and Warren, peptic ulcer disease is no longer a chronic, frequently disabling condition but a disease that can be cured by a short regimen of antibiotics and acid secretion inhibitors.

NB: The above information was sourced from *Australia’s Nobel Laureates, Adventures in Innovation* (a special imprint of *Australian Business and Investment Explorer*, published by ETN Communications), except information on Marshall and Warren which was sourced from the Nobel website (nobelprize.org).



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