

Survival of the fittest

How your genes determine your chances of surviving infection

Groundbreaking new research shows that a person's ability to survive infection is strongly linked to their genetic make-up.

Speaking to pathologists attending the Royal College of Pathologists Australasia (RCPA)'s annual Pathology Update conference in Melbourne on the weekend, leading paediatrician and immunologist Dr Jean-Laurent Casanova from the Rockefeller University in New York, said this advancement in the study of infectious disease heralds a new era of understanding in human illness.

The observation that only a small number of people infected by infectious agents actually develop that disease raises fundamental questions about the pathogenesis of infectious disease and may go some way to explaining why some people succumb to disease whilst others similarly infected actually survive, says Dr. Casanova.

"There is growing evidence to suggest that human genetics play a major role in determining who contracts infection and their survival outcome.

"If for example, a newborn baby dies shortly after contacting an infectious disease then research supports the hypothesis that the baby's fatality was due to him or her having an adverse genetic predisposition to that disease owing to a single gene variation which made them highly susceptible to the infection, says Dr. Casanova.

"However if an 85 year old person dies from that same infection we can hypothesise that their death was caused by secondary infection or reactivation of a latent infection and they therefore have a more complex variation in relation to that particular disease," says Dr Casanova.

"The research that we are doing in this area focuses on a brand new and exciting paradigm in human genetics – the deciphering of the genetic architecture of infectious diseases.

"The genetic theory of infectious disease not only opens doors to further understanding of and research in immunology but also paves the way for novel and tailored treatment options," says Dr Casanova.

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