

Darwin and Immunology: An Interesting Combination for the Day of Immunology 2009

The year 2009 celebrates the bicentennial of Darwin's birth and the sesquicentennial of his major publication *On the Origin of Species*. Thus, 2009 will witness numerous attempts to interpret scientific results from an evolutionary standpoint. For immunology, this makes a lot of sense. The immune response has evolved as a countermeasure to nature's most evolution-prone organisms – the microbes. The generation times of many microbes are in the range of minutes to hours, hence, a million times faster than ours. Due to their rapid generation times microbes are best equipped to follow Darwinian evolution relying on random mutation followed by selection of the fittest. Microbes, can evade defense mechanisms with such enormous rapidity that the immune system has had to work hard to keep up with this arms race. Even with the risk of a biased opinion, I think the immune system did very well by selecting such a powerful armamentarium. We are not only well equipped to defend ourselves against infectious agents but also for tumour surveillance and maintenance of host integrity. Obviously, such harsh competition can drive the immune response into dangerous situations such as transient collateral damage during infection and inflammation and even persistent damage such as autoimmune disease, chronic inflammatory disease and allergy. These are the trade-offs of an effective combat against a vast variety of rapidly changing invaders.

Looking through Darwin's eyes the mechanisms that underlie immune defense are quite impressive despite all its incompleteness. Almost by definition, immunity must leave us vulnerable to minimize detrimental trade-offs and the most potent immune response imaginable inevitably must cause damage. Hence a compromise had to be found between pay-off and trade-off. In 2009, immunologists again will do their best to bring awareness about immunology to the public with the culmination on the Day of Immunology, April 29, 2009. The Day of Immunology was brought to life by the European Federation of Immunological

Societies (EFIS) in order to strengthen public awareness of immunology as a basis for individual health and well-being. We invite you to think about fresh and innovative initiatives under this year's theme "Immunologists and the Public – Linking Science and Health". The most successful events will be awarded by prizes that will be delivered at the European Congress of Immunology, September 13-16 2009, in Berlin. I hope you will join us in developing exciting activities. One obvious choice for 2009 would be the link between Darwin's evolution and immunity. I wish you great success so that your endeavour will be selected for the Day of Immunology Prize. Looking forward to seeing you all in Berlin, at the ECI 2009. For further information please visit <http://www.dayofimmunology.org>. I wish you a happy, healthy and successful New Year.

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