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## EDITORIAL

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Dear Readers of CHIMIA,

You have in your hand an issue of CHIMIA dedicated to 'Hot Topics' review articles. The first article '**Horizons in Chemical Immunology – Approaches to Synthetic Vaccine Design**', written by **John Robinson** provides an up-to-date perspective of the properties a synthetic molecule must have in order to elicit a pathogen-specific humoral immune response. Chemistry will have an increasingly important role to play in the future rational design and optimization of molecules that impact on the immune system, *e.g.* as vaccines, vaccine adjuvants, or as immunostimulants and immunosuppressants. This

review article demonstrates that the rational chemical design of immunomodulatory molecules (chemical immunology) is now a reality.

The second article '**The Synthetic-Technical Development of Oseltamivir Phosphate Tamiflu™: A Race against Time**' is presented by a team from **F. Hoffmann-La Roche** including **Martin Karpf** as corresponding author. For their achievements, they were awarded the 2006 Sandmeyer Prize of the Swiss Chemical Society. The clinical development of the first orally available neuraminidase inhibitor prodrug oseltamivir phosphate (Tamiflu™) proceeded very rapidly. In order to support this program an unprecedented team effort in chemical process research, development, piloting, production and analytics took place, which allowed the successful launch of Tamiflu™ in 1999 only two and a half years after it was licensed from Gilead Sciences. This article describes selected aspects of the commercially used synthesis route and a brief summary of alternative syntheses devised by Roche chemists.

The third review article '**Evolution in the Test-Tube as a Means to Create Selective Biocatalysts**' by **Manfred T. Reetz**, recipient of the Prelog Medal 2006, highlights the concept of directed evolution of enantioselective enzymes. This report constitutes a short overview of the principle involved, together with a description of the first examples and the illumination of the present and future challenges. Exploitation of biocatalysis in organic chemistry is hampered by limited substrate acceptance and insufficient enantioselectivity. The evolutionary approach offers a solution to this long-standing problem thus providing to chemists with a true alternative method to asymmetric transition metal catalysis or organocatalysis.

I wish you a good read of this issue of CHIMIA.

Philippe Renaud  
(philippe.renaud@chimia.ch)