Felix Hoppe-Seyler (1825–1895) was a pioneer of biochemistry, remembered not only for his discovery of hemoglobin and his contributions to the chemical characterization of many other biological compounds and processes but also for having been the mentor of Friedrich Miescher and Albrecht Kossel. In his preface to the first issue of Zeitschrift für Physiologische Chemie, Felix Hoppe-Seyler coined the term Biochemistry (‘Biochemie’) for the then newly emerging discipline.
Cytotoxic CD8+ T cells are important in antiviral and antitumor immunity. These T cells utilize their receptors (T cell receptors, TCRs) to scan peptides presented by Major Histocompatibility Complex class I and II molecules (MHC-I and MHC-II) found on the surface of antigen-presenting cells. When the TCR engages a foreign peptide bound to an MHC, it can become activated, and elicit an immune response. Until recently, it has been widely accepted that MHC-I molecules (top image, pink surface) are limited to binding small peptides of 8 to 10 residues in length (black cartoon and stick), while MHC-II molecules (bottom image, blue/orange) have the ability to bind longer peptides. However, over the last few years this limitation to short peptides bound to MHC-I molecules has been challenged, and longer peptides (≥11 residues) have also been shown to elicit CD8+ T cell responses, and increasing numbers are being reported as immunogenic. Overall, the recent findings suggest that longer epitopes should be carefully considered when studying immune responses and for future peptide vaccine design and other immunotherapies. For more information, see the article by Josephs et al. on pp. 1027–1036 in this issue.

Images courtesy of Stephanie Gras, Monash University, Clayton, Australia.
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