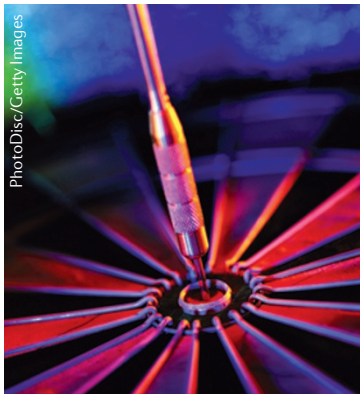
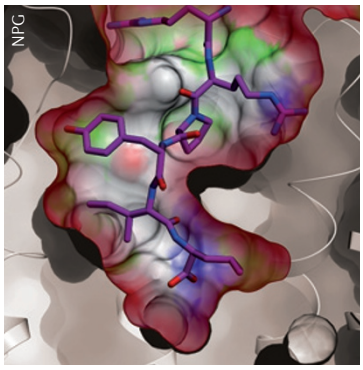
IN THIS ISSUE



Prioritizing cancer targets p35



GPCR structure and function p25

Effective and efficient selection of promising therapeutic targets is a key drug discovery challenge, particularly in light of the wealth of information emerging from large-scale omics initiatives. In an Analysis, Al-Lazikani and colleagues present an unbiased, systematic, computational assessment of biological and chemical space that can be used to prioritize targets from any human gene set. Focusing on oncology, they demonstrate the power of their approach to rapidly identify novel therapeutic targets from a large set of cancer-associated genes, and propose potential drug repurposing opportunities. Harnessing the immune system to treat cancer is an area of active investigation and several anticancer immunotherapies have demonstrated clinical success. In a Review, von Boehmer and Daniel provide insights into the generation and pathological roles of forkhead box P3 (FOXP3)-expressing regulatory T (T_{Reg}) cells, which are vital in regulating the immune response and maintaining immunological self-tolerance, and present strategies to therapeutically manipulate T_{Reg} cells in autoimmunity and cancer. Alterations in the activity of the kynurenine pathway of tryptophan metabolism in the central nervous system have been implicated in autoimmune disorders, neurodegenerative diseases and pain syndromes. Vécsei and colleagues provide an overview of the kynurenine system, highlighting the physiological and pathological roles of specific metabolites. Approaches to therapeutically intervene in this metabolic pathway and promising preclinical drug candidates are assessed. Finally, in a Perspective, Stevens and colleagues present the aims and achievements of the GPCR Network — a collaborative effort formed in 2010 with the goal of characterizing 15–25 representative human G protein-coupled receptors (GPCRs) within 5 years. The progress made so far and the challenges that remain in gaining more detailed insights into structure–function relationships of this receptor superfamily are discussed.

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