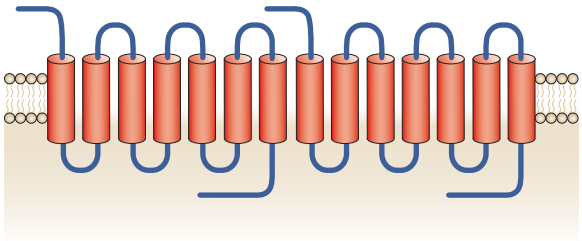
IN BRIEF



G PROTEIN-COUPLED RECEPTORS

Time-resolved FRET between GPCR ligands reveals oligomers in native tissues

Albizu, L. *et al. Nature Chem. Biol.* **6**, 587–594 (2010)

Whether G protein-coupled receptors (GPCRs) exist as oligomers is controversial, largely because studies have usually been performed in transfected cells lines. Albizu and colleagues showed that GPCRs can exist as oligomers in native tissue. They developed a time-resolved fluorescence resonance energy transfer (FRET) assay that used fluorescent ligands to selectively label specific GPCRs. After first showing that the ligand-binding-dependent FRET signal results from receptor oligomerization in cell lines, the authors demonstrated the presence of oxytocin receptor oligomers in mammary gland tissue.

CANCER

PDGF-CC blockade inhibits pathological angiogenesis by acting on multiple cellular and molecular targets

Hou, X. *et al. Proc. Natl Acad. Sci. USA* **107**, 12216–12221 (2010)

The function of platelet-derived growth factor CC (PDGF-CC) is largely unexplored. This paper showed that PDGF-CC acts on multiple cell types that are important for pathological angiogenesis and regulates the expression of pro-angiogenic and pro-apoptotic genes. Moreover, PDGF-CC regulates the phosphorylation and expression of glycogen synthase kinase-3β. Inhibition of PDGF-CC by a neutralizing antibody, by a short hairpin RNA or by genetic deletion suppressed choroidal and retinal neovascularization in animal models, suggesting that PDGF-CC might be a target for treating neovascular diseases.

STEM CELLS

Cell type of origin influences the molecular and functional properties of mouse induced pluripotent stem cells

Polo, J. M. *et al. Nature Biotech.* **28**, 848–855 (2010)

Epigenetic memory in induced pluripotent stem cells

Kim, K. *et al. Nature* 19 Jul 2010 (doi:10.1038/nature09342)

These two papers highlight that early-passage induced pluripotent stem cells (iPSCs) retain an epigenetic memory of their tissue of origin. These findings could have an impact on efforts to use differentiated iPSCs for disease modelling and for therapeutic applications. Polo and colleagues showed that iPSCs obtained from mouse fibroblasts, haematopoietic and myogenic cells by transcription factor-induced reprogramming exhibit distinct transcriptional and epigenetic patterns. Moreover, the cellular origin influenced the *in vitro* differentiation potentials of iPSCs into embryoid bodies and different haematopoietic cell types. Continuous passaging of iPSCs largely attenuated these differences. Kim and colleagues showed that low-passage iPSCs derived by transcription factor-induced reprogramming of adult murine tissues harboured residual DNA methylation signatures that were characteristic of their somatic tissue of origin, which favoured their differentiation along lineages related to the donor cell. This epigenetic memory could be reset by differentiation and serial reprogramming, or by treatment of iPSCs with chromatin-modifying drugs. By contrast, the differentiation and methylation of nuclear-transfer-derived pluripotent stem cells were more similar to classical embryonic stem cells than iPSCs.