**New vessels for lymph and blood**

A good infrastructure is essential for survival. In higher organisms, lymphatic and blood vessels take on the role of distributing essentials throughout the system, but unfortunately their genesis is still poorly understood and difficult to recapitulate. The groups of Augustin and colleagues, and Noel and co-workers have now developed assays to recapitulate the first steps of angiogenesis in vivo and lymphangiogenesis in vitro, respectively. Augustin’s spheroid assay allows one to determine the role of growth factors or the influence of drugs in the early phases of angiogenesis; Noel’s three-dimensional ring assay permits the identification of regulators of lymphangiogenesis.

**Article p439, p431, News and Views p384**

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**Transgenes go Omics**

Context is everything when it comes to understanding protein localization and function. Genome-wide studies in yeast have yielded comprehensive protein interaction maps, but unfortunately, analyses at the same scale in higher eukaryotes have not been feasible. Hyman and colleagues now provide a technical pipeline to lay the groundwork for a genome-wide interaction map. They developed a high-throughput system to rapidly tag large DNA constructs in bacterial artificial chromosomes, and then expressed these tagged BACs in cell lines or embryonic stem cells to follow the localization of proteins and glean their function.

**Article p409, News and Views p383**

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**Building a better quantum dot**

With their extremely bright fluorescence and stalwart photostability, quantum dots (QDs) have become popular probes for various imaging applications. Their relatively large size and multivalent nature, however, have hindered their use in cellular imaging. Ting and colleagues now report the generation of small, monovalent QDs. They trimmed down QD size to approximately that of an immunoglobulin gamma molecule by reducing the passivating layer. They conjugated the small QDs to monovalent streptavidin (with a single femtomolar biotin binding site) and isolated monovalent conjugates via gel electrophoresis. These small, monovalent QDs showed advantages in several live-cell imaging situations in which large and multivalent QDs caused artifacts. They should also find application in nanotechnology and single-molecule imaging studies.

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**Efficient hESC transfection**

Different human embryonic stem cell (hESC) lines are derived and cultured under different conditions. Genetic manipulation of these cells requires individualized optimization of transfection methods and is often limited by low transfection efficiencies. Mummery and colleagues present a general method for transfection of hESCs. Cells are transiently transferred to feeder-free culture and can be transfected at high efficiency using electroporation, lipofecion, adenovirus or lentivirus without loss of pluripotency and with no effect on karyotypic stability in most cases. The method was efficient for 12 lines derived and cultured under the most diverse conditions available and should therefore be applicable to most hESCs.

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By revisiting previously published datasets and with new studies, they show that the metric is predictive of neuronal response to diverse odorants in multiple experimental systems.

**Article p425**