TELOCYTE - A NEW TYPE OF INTERSTITIAL CELL

Telocytes are newly described interstitial cells with thin and long prolongations (telopodes). They have been overlooked until now, presumably because of their thin and tortuous prolongations, mostly impossible to observe under regular microscope (with the limit of 0.2 µm in the resolving power). Hitherto, the ultrastructural features define the telocytes and electron microscopy analysis of telocytes and their relationship with resident cells in various organs was performed in our laboratory.

Cellular and Molecular Determinants of Heart Regeneration

Cardiac stem cell niches

In 2009 our group detailed the ultrastructure of cardiac stem cell niche in adult mouse heart and clearly identified the presence of cardiomyocyte progenitors in a specific location - peri-coronary, in the epicardial segment at the emergence from aorta. A mechanism of cardiac renewing has been proposed. Telocytes have been shown to form a supportive interstitial network for cardiomyocyte progenitors within the stem cell niche and to have heterocellular junctions with putative stem cells.

Structural and Molecular Architecture of Intercellular Communication

Besides reported fibroblasts - cardiomyocytes junctions, we have found that other types of interstitial cells establish junctions each-other and with cardiomyocytes, cardiomyocyte progenitors, Schwann cells and vascular cells. We have found that junctions established by cardiac interstitial cell, hetero- or homo-cellular junctions, cannot be all included in the four major “textbook categories”: gap, tight, adherens junctions and desmosomes. The presence of these ‘non-canonical’ junctions, involving not only fibroblasts but, telocytes, nerves and vascular cells, could be key players in the development and (patho) physiology of the heart. Also, the molecular characterisation of the ‘non-canonical’ junctions may have particular implications for regenerative therapy.

Reed more on: [http://www.telocytes.com](http://www.telocytes.com)