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Cover images: A self-organized renal organoid made by serial reaggregation of ex-fetu mouse renogenic stem cells. Image credit: Veronika Ganeva and Jamie Davies. See paper by Davies, this issue, for more details.

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kidney. To test whether PSC-derived ureteric bud/collecting ducts can connect with existing collecting duct trees, we have differentiated HoxB7-GFP mESCs into ureteric bud (iUB) using the Taguchi method and grafted them adjacent to the ureter or the collecting duct system of cultured E11.5 mouse kidneys. The iUBs grafted in the metanephric mesenchyme showed branching and nephron formation, and they apparently fused with the host mouse collecting duct system. Those grafted by the ureter fused with it and expressed uroplakin, a marker specific for urothelium, and acquired a smooth muscle coat. We regard this experiment as a first step towards integrating organoids with host kidney tissue. No ethical approval is required.

P2-V1

Microscopic Features of the Rat Thymus and Spleen Under the Impact of Xenobiotics

Olga Avilova¹

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Pollution of the environment and its influence on the body is a very urgent problem for medicine. The experiment was conducted on 24 WAG male matured rats with the initial weight 180-220g. Animals were randomly divided into 4 groups of 6 in each depending on the length of administration: 7, 15, 30, 45 days. A widely used polyether – tryglycidyl ether of polyoxypropylentriol (TEPPT) was chosen. All rats were treated via gastric gavage during 7, 15, 30, 45 days by aqueous solutions of TEPPT in dose 1/10LD50 in conversion to 5.75g/kg. Rodents were deduced from the experiment by immediate cervical dislocation, experimental protocols were approved by the institution's ethical committee. Obtained material was fixed in 10% neutral buffered formalin for 24 hours, were subjected to standard processing and embedded in paraffin. From the prepared blocks made serial sections thick 5x10⁻⁶m stained by Haematoxylin eosin. Histological examination was performed with microscope «OlympusBX41» followed by morphometric study using «Olympus DP-soft

3.12» program. Statistical comparison was performed using Mann-Whitney test for statistical analysis.

Analyzed data demonstrate reliable changes during all stages of the experiment, where the spleen red pulp area increased by 36.26%, diameter of lymphatic follicles decreased by 16.96%, width of the mantle zone by 19.06%, width of the marginal zone by 8.65%, while width of periarterial zone increased by 10.69%. In thymus the changes in the ratio of the cortical substance by 48.13%, of the medulla - 30.34% and stroma - 8.6% were observed with the maximal alterations on the 45th day of the experiment.

The identified structural changes in the thymus indicate the reaction of the immune system organs, which some authors associate with an increase in the frequency of apoptosis and a decrease in the level of cell proliferation in response to adverse factors.

P2-V2

Evolution and Morphology of the Tetrapod Brachial Plexus

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The brachial plexus is formed by interconnected spinal nerves that give rise to branches which innervate the muscles associated with the pectoral limb. Historically, the utility of this anatomical structure has largely been associated with practical medical and veterinary interests, although recently the utility of the plexus in understanding mammalian evolution has been explored. In this study, we examine published and novel dissections of the brachial plexus across a broad range of tetrapod taxa for common traits using character optimization, sometimes known as trait mapping. Each of the major clades of tetrapods is included in the analysis, as are major clades of mammals following from published records. Our results indicate that the overall dorso-ventral patterning of the brachial plexus is a highly conserved trait, while other features seem to characterize large clades. Autapomorphies are common throughout