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European Journal of Histochemistry
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The *European Journal of Histochemistry* was founded in 1954 by Maffo Vialli and published till 1979 under the title of *Rivista di Istochimica Normale e Patologica*, from 1980 to 1990 as *Basic and Applied Histochemistry* and in 1991 as *European Journal of Basic and Applied Histochemistry*. It is now published under the auspices of the University of Pavia, Italy.
The *European Journal of Histochemistry* is the official organ of the Italian Society of Histochemistry and a member of the journal subcommittee of the International Federation of Societies for Histochemistry and Cytochemistry (IFSHC), and has been an influential cytology journal for over 60 years, publishing research articles on functional cytology and histology in animals and plants.

The Journal publishes Original Papers, Technical Reports, Reviews, Brief Reports, Letters to the Editor, Views and Comments, and Book Reviews concerning investigations by histochemical and immunohistochemical methods, and performed with the aid of light, super-resolution and electron microscopy, cytometry and imaging techniques; attention is also given to articles on newly developed or originally applied histochemical and microscopical techniques.

Coverage extends to:
- functional cell and tissue biology in animals and plants;
- cell differentiation and death;
- cell-cell interaction and molecular trafficking;
- biology of cell development and senescence;
- nerve and muscle cell biology;
- cellular basis of diseases.

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SESSION I
NEUROANATOMY: NEW TECHNIQUES AND FINDINGS

STRUCTURAL, FUNCTIONAL AND HYBRID NETWORK CONNECTIVITY REVEAL THE TOPOLOGICAL ORGANIZATION OF THE HUMAN CEREBELLUM

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Studying the brain as a network of interconnected nodes and the recent developments of network theory contributed to unveil the key structural principles underlying the topology of the healthy human brain connectome at macroscale level. However, despite the increasing advances in connectomics and network neuroscience, the way different cerebellar compartments connects to each other at the system level has been poorly investigated. Indeed, unlike the simplicity of elementary cerebellar circuit, disentangling comprehensively its structure and function at the macroscale level is still challenging. Herein, we aim at characterizing the cerebellar network topology, mapping the hubs of the cerebellum and their mutual relationship, as well as the cerebellar modular community structure. Whole-cerebellum structural and functional networks of 200 unrelated healthy subjects were reconstructed from diffusion magnetic resonance imaging (MRI) and resting-state functional MRI data (fMRI). In addition, we explore for the first time the cerebellar networks derived from track-weighted dynamic functional connectivity (tw-dFC), which has been recently proposed as a method to achieve a joint analysis of structural and dynamic functional connectivity in this framework. We show that the topology of structural, functional and hybrid (structural-dynamic functional connectivity) cerebellum network clusters into spatially and functionally coherent modules with high efficiency and short path length, thus reflecting an intrinsic small-world architecture, functionally segregated (local clustering) and integrated (global efficiency). In addition, the cerebellum seems to exhibit a rich-club organization, with highly connected and central nodes, being located predominantly in integrative cerebellar regions, having a strong tendency to be mutually interconnected, thus constituting a focal point for whole-cerebellum communication and information transfer. In future work, mapping cerebellum networks at the macroscale level could be useful for identifying novel biomarkers of cerebellar disease, characterizing individual variation and mapping the architecture of highly resolved neural circuits.

EFFECTS OF PERINATAL EXPOSURE TO BISPHENOL A OR S ON SEXUAL BEHAVIOR AND KISSPEPTIN SYSTEM IN MICE

Bonaldo B.[1,2], Casile A.[1], Bettarelli M.[1], Gotti S.[1,2], Marraudino M.[1], Panzica G.[1,2]

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Hypothalamic kisspeptin system is highly sensitive to the action of estrogens and of xenoestrogen molecules. In order to compare the effects of two different bisphenols (BPA and BPS) on brain circuits, we tested, in mice of both sexes, the effects of perinatal exposure to these compounds on the kisspeptin neurons and on reproductive behavior. Bisphenols, found in several plastics and epoxy resins, are well-known EDCs (Endocrine Disrupting Chemicals) and exposure to them is especially dangerous during specific "critical periods" of life when they can originate permanent effects. In the present experiment, we orally treated C57BL/6 dams with: a) a dose of 4 µg/kg body weight/day (*i.e.* TDI dose for BPA) of BPA or b) a similar dose of BPS, or c) vehicle (corn oil) only, from mating until the weaning of the offspring. We monitored the development of the offspring, evaluating their body weight (daily), food intake (weekly), puberty onset and estrous cycle (in females) until the PND90 when we analyzed the reproductive behavior (two-bedding T-Maze test and sexual behavior). BPA and BPS alter the onset of the puberty: BPA- or BPS-exposed males show anticipation of the puberty, while BPA-exposed females present a delay, while the estrous cycle of BPA- or BPS-exposed females was altered. BPA-exposed males have a decreased interest towards females (less time spent in the arm with the female bedding and a decreased number of mounts and intromission), while BPS-exposed males show an increased number of mounts, intromissions, and anogenital sniffing. Control males show a decreased number of mounts and intromissions towards BPS-exposed females. Finally, the immunohistochemical analysis of the hypothalamic kisspeptin system (rostral periventricular area of the third ventricle, paraventricular nucleus and arcuate nucleus) confirmed the sexual dimorphism in all the analyzed nuclei, but the system was altered in BPA or BPS-treated mice, with a significant increase of immunoreactivity in males. These results support the idea that the kisspeptin system is a not only a target for BPA, but also for BPS and that its alterations are probably linked to modifications on both physiological and behavioral parameters.

COMPARISON OF DECELLULARIZATION PROTOCOLS TO GENERATE PERIPHERAL NERVE GRAFTS: A STUDY ON RAT SCIATIC NERVES

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In critical nerve gaps where direct tensionless repair cannot be applicable, an additional nerve graft or conduit are needed to fill the gap and connect the two transected nerve stumps. Decellularized nerve allografts are considered one of the promising tissue engineering strategies that can provide superior regeneration results compared to nerve conduits. The superiority of the decellularized nerves over nerve conduits is owed to the availability of natural well-conserved extracellular matrix component that has proven to play an important role in supporting axonal guiding and peripheral nerve regeneration. Up to now, the known decellularized techniques are time and effort consuming. In the present work performed on rat sciatic nerves, we aimed to investigate a novel nerve decellularization protocol able to combine an effective decellularization in short time with a good preservation of the extracellular matrix component. To this aim, a decellular-