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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;
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- cellular basis of diseases.

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RESCUE OF CELL SURFACE TRAFFICKING OF R451C NEUROLIGIN3, AN AUTISM-LINKED MUTATION

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Autism spectrum disorders (ASDs) are neurodevelopmental syndromes characterized by deficits in social behavior and neurotransmission. Cell-adhesion synaptic proteins of the Neuroligin family are among the risk genes associated with ASDs. The human autism-linked substitution, R451C in Neuroligin3 (NLGN3), affects folding of the extracellular domain and causes defective trafficking of mutant protein to the cell surface and its partial retention in the Endoplasmic Reticulum (ER). The accumulation of the misfolded protein in the ER, activates the Unfolded Protein Response (UPR) *in vitro* and *in vivo*[1,2]. The knock-in (KI) mouse expressing the R451C substitution in the NLGN3 gene presents reduced protein levels, autistic-like behaviors and changes in synaptic transmission[3,4]. By screening an FDA-approved library, we have selected dexamethasone (DEX) for its effect in increasing R451C protein levels, favoring the exit of the mutant protein from the ER and improving its trafficking to the cell surface. The treatment with DEX also diminishes ER stress caused by the mutation, both in over-expression in HEK-293 cells and in physiological conditions, in neural progenitor cells (NPCs) derived from the adult hippocampus of the R451C KI mice. The effect of the DEX *in vivo* will evaluate whether the improved trafficking of NLGN3 R451C to the cell surface by DEX is accompanied by a rescue of social behaviors and functional changes described for the NLGN3 R451C KI mouse.

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ETHANOL EXTRACT OF *GANODERMA PFEIFFERI* INHIBITS SURVIVAL AND EPITHELIAL-MESENCHYMAL TRANSITION OF HEPG2 CELLS

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Ganoderma pfeifferi Bres is an uncommon lignicolous species, found almost exclusively in Europe. This mushroom is a source of several bioactive compounds, including sesquiterpenes, such as ganomycin A, B, K, and triterpenoids, such as Ganoderone A, B, C, and Lucialdehyde D[1]. *G. pfeifferi* exhibited antimicrobial activity, antiviral properties and UV protection on human keratinocytes, while the anti-tumour effects have never been studied.

In this research, we investigated the *in vitro* effects of an ethanol extract of *G. pfeifferi* on growth, survival and migration of the hepatocarcinoma cell line HepG2. The tested extract significantly inhibited proliferation of HepG2 cells in a time and dose-dependent manner. The extract also decreased the expression of cyclin D1 and increased the expression of p53, p21 and p27 protein levels. In addition, the extract decreased the levels of the anti-apoptotic protein Bcl-2, while increasing those of the pro-apoptotic proteins Bax and cleaved caspase-9 and 3. We also found that *G. pfeifferi* extract was able to inhibit HGF-induced Epithelial-Mesenchymal Transition (EMT) and migration of HepG2 cells. This was paralleled by a significant reduction in Twist protein expression and by an increase in E-cadherin and -catenin levels. Immunofluorescence experiments showed that the increased expression of E-cadherin and -catenin was paralleled by a re-localization of these proteins on cell membranes, which could be indicative of improved function of the adherent junctions in these cells. Thus *G. pfeifferi* extract besides inhibiting cell proliferation and invasiveness, improves cell-cell adhesion, supporting the expression of a more differentiated phenotype.

In conclusion, although further studies are needed to clarify the molecular mechanisms underlying the anti-cancer effects of this fungal species, we believe it could be of interest not only in the prevention of hepatocellular carcinoma, but also as adjuvant, thus allowing a reduction of the concentrations of drugs currently used, and therefore their toxicity.

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MICRO-COMPUTED TOMOGRAPHY 3D RECONSTRUCTION OF THE MOUSE OVARY FOLLOWING GONADOTROPINS TREATMENT

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Gonadotropins regulate mouse folliculogenesis during follicles recruitment (type 4-5, T4-5) and selection for growth or elimination (T6-7). By using micro-Computed Tomography (microCT), the only technique with high isotropic resolution allowing organs 3D in-silico reconstruction[1], we recently demonstrated that in the mouse ovary physiological follicles recruitment occurs simultaneously all-over the cortex and folliculogenesis is completed within the same region[2]. Here, using microCT, we studied the impact of a superovulation treatment with PMSG and hCG (FSH- and LH-like gonadotropins, respectively) on the number of the different follicle types, their 3D localisation, recruitment and selection dynamics inside the ovary.

Compared to untreated ovaries, 48hr after PMSG, the number of preantral follicles was the same, suggesting that FSH-dependent recruitment of T4-5 follicles is balanced by an equivalent number of follicles growing from the preceding primordial pool. An evident change in PMSG ovaries was a 5-fold decrease ($p=0.002$) of antral T7 follicles, those mainly involved in follicle selection. Also, in the medulla region, we observed many atretic-like follicles, characterised by a more intense microCT contrast associated with a collapsed antrum, de-structured granulosa-cell layers and