

2001: AN OVERVIEW

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Among the papers published in the European Journal of Histochemistry in 2001, several deal with plant cells. Personally, as a cell biologist mainly working with animal cells, I have always been fascinated by plant cells: the images of those beautiful nuclei are not only something to look at and marvel at. In the past few years, important indications of cell structure and function have come from plant cytology and cytochemistry (see e.g. Medina *et al.*, 2000). Along this line, Lingua and coworkers (2001) described the changes that occur after arbuscular mycorrhizal fungi colonization, which can induce a strong increase in metabolism. Nuclear changes can also be induced by pathogens, as in *Licopersicon esculentum* (Lingua *et al.*, 2001).

In the same issue, we find other interesting papers: Balestrazzi *et al.* (2001) have studied the expression of DNA topoisomerase I in *Daucus carota*: the elucidation of the expression pattern of this gene is important in the evaluation of its physiological functions. In another paper, Bianciotto *et al.* (2001) studied the association of arbuscular mycorrhizal fungi with rhizobacteria, which are commonly used as biopesticides and biofertilizers: the anchoring between fungi and bacteria occurs by means of extracellular polysaccharides. This could be of relevance for the production of inocula with a stable fungus-bacteria association.

Affinity cytochemistry was used by Baldan and coworkers (2001) to ascertain the presence of cellulose in algal cell walls.

In 2001, a number of papers were published in the field of *Histochemistry in Pathology*. Horita *et al.* (2001) studied the prognostic factors in breast cancer: in particular, the authors described the expression of PCNA, bcl-2, bax and wild-type p53 as important diagnostic markers at early stages of the

disease. Two other papers from the same group (Ishida *et al.*, 2001 and Iwasa *et al.*, 2001) took into account a comparative study of two potentially invasive forms of intraepidermal squamous cell carcinoma and increased DNA instability in early stages of oral leukoplakia. As the above papers point out (and this is, once again, important and promising), histochemical tools are of great potential in diagnosis. During the last two decades, in fact, the histochemical goals have slowly turned from diagnosis confirmation to the early detection of disease-linked cellular markers. The *reviews* published in 2001 also include a beautiful paper along the same lines: Steinbeck (2001), in his paper on pathologic mitosis and its significance in tumorigenesis, gives an up-to-date review of this topic, including cell division in tissue disorders, chromosome division figures and void cycle checkpoints.

Another interesting paper (Sedo *et al.*, 2001) concerns cell membrane proteases; in particular, dipeptidyl peptidase IV in glioblastoma and astrocytoma cultured cells. The authors suggest a positive correlation between the degree of transformation of cells and activity of this protease.

Among the *technical improvements*, I would like to cite the paper by Gallus *et al.* (2001) on the three-dimensionally-reconstructed distribution of FMRFamide immunopositive neurons in the ventral ganglion of *Balanus*.

There are still many more papers in the field of *Basic Histochemistry* that could be mentioned. Among them are the characterization of interstitial cells in pre- and post-natal development of sheep pineal gland (Redondo *et al.*, 2001), the effect of light on lactate hydrogenase activity of the epididymis (Ponce *et al.*, 2001), and the study of cell

kinetics in a human skin equivalent, i.e. a bioengineered organ raised *in vitro* as a candidate for replacing damaged human skin (Casasco *et al.*, 2001). In this category, we find also the paper by Artico *et al.* (2001) on the effect of interleukin 1 on the rat thymus, which describes the capability of this cytokine to affect the thymus even in aged rats. Finally, in the field of apoptosis, we find a paper on the cleavage of PARP-1 and the formation of strand breaks in DNA, describing how the p89 proteolytic fragment of poly(ADP-ribose) polymerase-1 is resistant to protease degradation in the cytoplasm of apoptotic cells (Soldani *et al.*, 2001). This finding increases the family of nuclear proteins which are extruded from the nucleus into the cytoplasm of apoptotic cells (Pellicciari *et al.*, 2000) and could be involved in the genesis of autoimmune diseases, in the absence of a correct apoptotic clearance (Rovere *et al.*, 2000).

The high quality of the papers published in 2001 is consistent with the important increase in the Impact Factor value of EJV which occurred in 2000: this is an apparent sign of a wider diffusion and an increasing impact of our Journal on the scientific community.

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