

# What's new in an old-fashioned journal of histochemistry?

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Scientific journals experience, in these last years, a series of changes which will probably radically modify the aspect of the scientific literature as we have known it till now. From printed pages, the Journals are shifting toward online printing, new journals are appearing only in this form and have high impact factors; traditional, established journals have difficulties in making a living. Moreover, there is a constant drift toward new scientific trends which progressively modifies the journals themselves.

In this view, the publications devoted to histochemistry and cytochemistry are representative.

Almost all the journals in this field have slowly but steadily shifted from the description of methods and techniques to their application for solving problems in cell biology. This trend has been general, and has involved the journals of histochemistry in the United States and Europe as well.

In fact, recently also the European Journal of Histochemistry has modified its title by adding the subtitle *A journal of functional cytology* to emphasize the pivotal role of histochemistry in the understanding of the basic mechanisms underlying major biological processes such as differentiation and the regulation of normal and tumor cell growth (as reported in the Editors' forewords of the first issue of volume 50, 2006). At this subject, it is interesting to look at the papers on cell biology recently published herein, and review articles are the best introduction to this field.

In the three-parted review by Thomas Cremer and Christoph Cremer (2006 a, b), the ambitious project of the history of chromosome territories is perfectly fulfilled. This concept, nowadays widely accepted, had ups and downs in its history, facing phases of rise, fall and resurrection. The present understanding of the nucleus is actually based on it, and its implications for nuclear structure and function are still far from having been fully explored.

Nuclear proteins and their involvement in chromatin arrangement seem to be one of the keys to laminopathies: Maraldi *et al.* (2006) point to one of these proteins, emerin (see also Squarzony *et al.*,

2005), as directly involved in these pathologies. Small molecules recognized since a few years as capable of intranuclear signal transduction (Evangelisti *et al.* 2006) as well as cdks and cyclins in muscle differentiation (De Falco and De Luca, 2006) are the topics of other articles. On still nuclear background, Segui-Simarro *et al.* (2006) analysed the presence of Cajal bodies and their increase in relation to embryogenic development in microspores, thus confirming the conservation during evolution of basic nuclear mechanisms in animals and plants. Nuclear functions are dynamic, and the behaviour of organelles as well (see Soldani *et al.*, 2006; Smetana *et al.*, 2006). The time-dependent expression of different proteins is described and applied also to pathology (see for instance Sereno *et al.*, 2006) with p53, Bcl-2 and other markers, such as the musclebind-like protein for myotonic dystrophies (Cardani *et al.* 2006). Interestingly, a strictly dynamic phenomenon such as differentiation often includes in its course a series of events common to cell death: Sjakste and Sjakste (2007) have shown that DNA strand breaks present in differentiating cells may derive from a non-apoptotic function of caspases. Apoptosis, in its turn, may be induced by inhibition of the proteasome, at least in an in vitro system (Sassone *et al.* 2006).

In between the above quoted papers, however, we can find in the European Journal of Histochemistry several more technical articles, devoted to set up new techniques or to describe the side effects of the application of well known methods, like the use of restriction endonucleases (Nieddu *et al.* 2006) or the simultaneous application of two techniques (i.e., the immunogold silver staining and epi-fluorescence) which are rarely used together (Helliot *et al.* 2007). Vitolo *et al.* (2005) have used an anti DNA ligase I antibody to label proliferating cells in culture and tissue sections; Sarasquete and Gutierrez (2005) proposed a new tetrachromic technique for studying normal and pathological tissues; Edqvist *et al.* (2006) identified retinal subtypes by localising transcription factors.

When considering the scientific articles published in traditional histochemical journals such as the *European Journal of Histochemistry* one is always surprised by the sometimes apparent scientific heterogeneity of papers which appear in the same issue. We can find, for instance, a report on the stimulation of osteoblast growth by electromagnetic field (Icaro Cornaglia *et al.*, 2006) or the gossypol spermatotoxicity (Akinola *et al.*, 2006) or phagosome maturation in *Paramecium* (Wyroba *et al.* 2007). These unrelated papers make use of histochemistry in its broadest sense, thus testifying the vitality of this area. This is also apparent in the papers collected in memory of Carlo Rizzoli in the first supplement to volume 51 (2007) which point out how the Fathers of the Italian Histology valued histochemistry as an almost unique and irreplaceable approach. The articles by Osculati *et al.* (2007) or Formigli and co-workers (2007) are good examples of this. And it is worth mentioning also the paper by Sirigu *et al.*, (2006) on the prognostic prediction on the outcome of cutaneous melanoma. In this paper, histochemistry is not only a tool but a bridge linking two populations from different country like Ecuador and Italy.

One may conclude that traditional cytochemical approaches presented in a conventionally published journal still keep their informational impact on cell biology while the printed micrographs preserve their aesthetic charm.

As Lord Byron wrote: *One drop of ink makes thousands, perhaps millions, think.*

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