1999: OVERVIEW

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In the last year of the century (or, better, the last of the years beginning with 19...) the European Journal of Histochemistry has published four issues and three Supplements for a total of 576 pages. In the Supplements 313 abstracts are collected. In the four issues 34 papers appear, of which 31 are original paper while the remaining three are minireviews.

Supplements first: in the first are collected the papers presented at the First International Conference on the "Analysis of microbial cells at the single cell level. Why, How, When?" held in Como, Italy on March 25th to 27th, on behalf of the Micro Physiology Section of the European Federation of Biotechnology, of the Federation of European Microbiological Societies, the Società Italiana di Microbiologia generale e Biotecnologie Microbiche and the Italian Group of Cytometry.

In the second supplement you will find the proceedings of the 28th National Congress of the Italian Society of Histochemistry, held in Camerino, Italy, on the behalf of F. Amenta and L. Vitaioli.

Finally, in the third supplement the proceedings of the 16th National Meeting of Cytometry, organized in Piano di Sorrento, Italy, from November 10th to 12th, by L. Del Vecchio, R. De Vita, E. Erba and G. Mazzini, are collected .

As for the original papers, I have chosen to divide the contributions printed in 1999 in a few categories, so that it comes easier to pinpoint a few of them.

The *minireview* section begins with a paper by Diaspro and Robello (Vol. 43, p. 169) on the applications, possible developments and problems related to the two-photon exitation fluorescence, a very promising tool in the fast developing areas of laser powered light microscopy.

Pilgrim (Vol. 43, p. 261) reviews another interesting field, the steroid hormones effects on the cell, particularly in the nervous system, giving a very up-to-date description of how the pathways of these interactions may involve nuclear receptors activated by the plasma membrane or via multiple signal tranduction cascades.

Synaptonemal complex analysis as a tool in human male infertility (Solari, Vol. 43, p. 265) is the topic of another review. Electron microscopic observation of such structures from human testicular biopsies can help in recognizing several chromosomal abnormalities (Robertsonian translocations, Y disomy and others) and have become an important tool both for diagnosis and basic research.

Basic histochemistry and cell biology is the second category. Here I find several papers, among which I would like to quote a paper by Scocco *et al.* (Vol. 43, p. 47) on the use of lectin histochemistry for discriminating between sialo derivatives and their role in the detection of the mucous membranes of the horse sublingual glands; a paper on enzyme histochemistry on the urinary bladder of *Rana esculenta* during hibernation and activity (De Piceis Polver *et al.*, Vol. 43, p. 55), the autometallographic localisation of Cu and Zn in particular soft tissues of wikles (*Littorina*) (Soto *et al.*, Vol. 43, p. 323). All these papers seem to refer and deal with strange techniques, strange tissues and animal models, in a sort of continuation of the old habit, when Zoology mainly dealt with strangeness. If we consider them from another point of view, the importance of basic research is clear. Hibernation, for instance is becoming an important topic for an *apparently* unrelated research field. Some years ago, nobody could have imagined that the studies on hibernation could have led to the search for the Hibernation Induction Trigger, the protein responsible for the First Step (Wang

et al., 1988). Nowadays in several labs around the world, active peptides similar to HIT are utilized to prolong the life of explanted human organs (heart, liver, pancreas) before re-implantation (Bolling *et al.*, 1997).

Histochemistry applied to Pathology has always been very well represented in EJH. In this section we find papers on PCNA and apoptosis in myocardial infarction by Ottaviani *et al.* (Vol. 43, p. 9) or on defective apoptosis in the tumorigenesis (Cappello *et al.*, Vol. 43, p. 15). Interstingly, the latter paper hypothesize that a drastic reduction in the apoptotic rate in myelolipoma could be considered one of the growth regulatory mechanisms of this tumor.

Prion protein immunodetection is the topic of the contribution by Van Everbroeck *et al.* (Vol. 43, p. 335). Spongiform encephalopathies have become well known in the last years especially for the economic impact of their discovery in cattle in several countries. The possibility to detect on paraffin sections the epitope of the prion protein with high sensitivity and specificity is clearly shown by the authors.

The paper by Clarke *et al.* (Vol. 43, p. 311) relates on the relationship between the presence of mutant p53 protein and the negative outcome of colorectal cancer. They conclude that the lymph node expression of this mutant protein is associated with increased mortality. As in the case of the following paper by Tuccari *et al.* (Vol. 43, p. 317) on lactoferrin in human astrocytomas and glyoblastomas, immunohistochemistry proves to be a useful tool for diagnosis, although it should always be paralleled by other techniques. In conclusion, the horizon of the possible use of histochemistry in pathology is still being explored and will continue to be for a long time.

In the last section, *Technical improvements*, there are two papers (Bettinger *et al.*, p. 185; Marziliano *et al.*, p. 155) which by ISH and PCR detect human papilloma virus in cells or in paraffin embedded tissues. These powerful techniques allow the clear detection of infected cells as well as, according to Marziliano *et al.*, the possibility of semiquantitative evaluation of infection.

In the paper by Menghi *et al.* (Vol. 43, p. 339), we find an original description of the possible use of confocal laser microscopy on tissue blocks.

Finally, a particular significance can be ascribed to the paper by Genre and Bonfante (Vol. 43, p. 105) on a topic between cell biology and pathology in plants. By using immunofluorescence *in situ* techniques, the authors study the pattern of g-tubulin and chlatrin changes in tobacco cells colonised by mycorrhyzal fungus, which provokes a dramatic rearrangement of the host cytoplasm.

REFERENCES

Bettinger D., Bernard B., Riethmuller D., Greslin I., Gay C., Lab M., Seillès E., and Mougin C.: Human papillomavirus detection by non isotopic in situ hybridization, *in situ* hybridization with signal amplification and in situ Polymerase Chain Reaction. Eur. J. Histochem. *43*, 185-194, 1999.

Bolling S.F., Su T.P., Childs K.F., Ning X.H., Horton N., Kilgore K., and Oeltgen P.R.: The use of hibernation induction triggers for cardiac transplant preservation. Transplantation *63*, 326-329, 1997.

Cappello F., Farina F., Di Felice V., Marcianò V. , Todaro M., Balsano G., Zummo G., and Stassi G.: Defective apoptosis as potential mechanism in the tumorogenesis of myelolipoma. Eur. J. Histochem. *43*, 15-18, 1999.

Clarke G., Ryan E., Crowe J., O'Keane J.C. and MacMathúna P.: Immunohistochemical detection of mutant p53 protein in regional lymph nodes is associated with adverse outcome in Stage II Colorectal Cancer. Eur. J. Histochem. *43*, 311-316, 1999.

De Piceis Polver P., Fenoglio C., Barni S., and Gerzeli G.: Comparison of K+-p-nitrophenyl phosphatase activity in the urinary bladder of the frog *Rana esculenta* during hibernation and active life. Eur. J. Histochem. *43*, 55-62, 1999.

Diaspro A. and Robello M.: Two-photon excitation of fluorescence in three-dimensional microscopy. Eur. J. Histochem. *43*, 169-178, 1999.

Genre A., and Bonfante P.: Cytoskeleton-related proteins in tobacco mycorrhizal cells: g-tubulin and chlatrin localisation. Eur. J. Histochem. *43*, 105-112, 1999.

Marziliano N., Mancuso T., Comar M., Cernigoi E., Da Prato L., Garagna S., Boniotto M., Pirulli D., Puzzer D., Morgutti M., Amoroso A., and Crovella S.: Fluorescent *in situ* PCR allows sensitive three hours detection of human papilloma virus in cells and tissues. Eur. J. Histochem. *43*, 155-157, 1999.

Menghi G., Marchetti L., and Materazzi G.: Confocal laser microscopy to investigate myoepithelial cells in tissue blocks. Eur. J. Histochem. *43*, 339-341, 1999.

Ottaviani G., Lavezzi A. M., Rossi L., and Matturri L: Proliferating Cell Nuclear Antigen (PCNA) and apoptosis in hyperacute and acute myocardial infarction. Eur. J. Histochem. *43*, 7-14, 1999.

Pilgrim C.: The unexpected promiscuity of steroid hormones. Eur. J. Histochem. *43*, 261-264, 1999.

Scocco P., Menghi G., Ceccarelli P., and Pedini V.: Lectin histochemistry and identification of O-acetylated sialoderivatives in the horse sublingual gland. Eur. J. Histochem. *43*, 47-54, 1999.

Solari A.J.: Synaptonemal complex analysis in human male infertility. Eur. J. Histochem. *43*, 265-276, 1999.

Soto M., Lekube X., and Marigómez I.: Autometallographical localisation of Cu and Zn within target cell compartments of winkles following exposure to Cu&Zn mixtures. Eur. J. Histochem. *43*, 323-334, 1999.

Tuccari G., Giuffrè G., Crisafulli C., Barresi G.: Immunohistochemical detection of lactoferrin in human astrocytomas and multiforme glioblastomas. Eur. J. Histochem. *43*, 317-322, 1999.

Van Everbroeck B., O'Rourke K.I., and Cras P.: Immunoreactivity of the monoclonal antibody F89/160.1.5 for the human prion protein. Eur. J. Histochem. *43*, 335-338, 1999.

Wang L.C., Belke D., Jourdan M.L., Lee T.F., Westly J., and Nurnberger F.: The "hibernation induction trigger": specificity and validity of bioassay using the 13-lined ground squirrel. Cryobiology *25*, 355-362, 1988.