Editorial

Histochemistry and Cell Biology - 61 years and not tired at all

Douglas J. Taatjes[1], Michael Schrader[2], Takehiko Koji[3], Jürgen Roth[4]

[1] Department of Pathology and Laboratory Medicine, Larner College of Medicine, University of Vermont, Burlington, VT 05405, USA, [2] College of Life and Environmental Sciences, Biosciences, University of Exeter, Exeter EX4 4QD, UK, [3] Department of Histology and Cell Biology, Nagasaki University Graduate School of Biomedical Sciences, Nagasaki 852-8523, Japan, [4] University of Zurich, CH-8091 Zurich, Switzerland

Isaac Newton is credited with quipping, “If I have seen further it is by standing on the shoulders of Giants”. This remark, made more than 300 years ago is still relevant for today’s scientists. Certainly, in our field of Histochemistry and Cell Biology many of the insights we enjoy and techniques we apply in our research are the result of contributions to the literature provided by our scientific forebearers. As Editors of *Histochemistry and Cell Biology* we are entrusted with maintaining the high quality and continued success of the journal instituted by its founders M. Chèvremont, Liège; H.W. Deane, New York; P.B. Diezel, F. Duspiva and H. Reznik, Heidelberg; O. Eränkö, Helsinki; P. Gedigk and N. Schümmelfelder, Bonn; W. Gössner, Tübingen; W. Graumann, Göttingen; A. G. E. Pearse, London; W. Sandritter, Frankfurt/Main; T.H. Schiebler, Kiel; G. Siebert, Mainz; and M. Wolman, Tel-Hashomer. The list of the international editors represented a virtual list of “Who’s Who” in histochemistry at that time.

Brief history of the journal

The journal has a long and distinguished history in publishing cutting edge research, technical developments, and special topic issues. A perusal of the contents of the early volumes of the journal reveals a cornucopia of developments of the histochemical methods still widely in use today, contributed by eminent scientists such as P. van Duijn, Leiden; O. Eränkö, Helsinki; P. Gedigk, Bonn; R. Gossrau, Berlin; W. Graumann, Tübingen; L.-I. Larsson, Copenhagen; Z. Lojda, Prague; B. Maurer-Schultze, Würzburg; A.E.F.H. Meijer, Amsterdam; K. Ogawa, Kyoto; A.G.E. Pearse, London; D. Pette, Konstanz; M. van der Ploog, Leiden; H. Puchtler, Georgia; Y. Sano, Kyoto; and L.A. Sternberger, Rochester, NY. Last year, we celebrated the 60th anniversary of the founding of the journal, exemplifying its longevity in a crowded and expanding scientific publishing marketplace. This gave us pause to reflect on the history of the journal, and what it means as an author today to contribute a manuscript to a journal with such a robust scientific pedigree. In 2008, on the occasion of its 50th anniversary, Jürgen Roth, H. Dariush Fahimi, and Detlev Drenckhahn presented an historical overview of the evolution of *Histochemistry and Cell Biology* (Roth et al. 2008) since its inception in 1958 as the *"Abteilung Histochemie"* (Histochemistry Division) of the *"Zeitschrift für Zellforschung und mikroskopische Anatomie"* (nowadays *Cell and Tissue Research*). Over the ensuing 60 years, the journal's name has changed three times, reflecting overall movement in the field and scientific literature in general: (1) in 1964-1965, the journal established itself as an independent entity with concomitant change of name to *Histochemie/Histochemistry/Histochimie*, the three languages reflecting its broad international reach and appeal; (2) in 1974, reflecting the ubiquitous nature of the English language in scientific publications, including those submitted to this journal, the name was changed to *Histochemistry*; and (3) finally, in 1995 under the

leadership of Co-Editors-in-Chief Detlev Drenckhahn and Jürgen Roth, the current name *Histochemistry and Cell Biology* was adopted, recognizing the expanding scope of articles to be more inclusive of the rapid advances in basic cell and molecular research (Figure 1). As Juliet famously remarked in Shakespeare's play "Romeo and Juliet", "What's in a name? That which we call a rose by any other name would smell as sweet", may be an apt metaphor for the change in the name of our journal over the past 60 years. And, though the name may have changed to reflect the growth and maturation of both scientific publishing practices, as well as the science itself, the underlying objectives to publish high quality manuscripts illustrating technical innovations in histochemistry and their application in original research in cell and molecular sciences have remained steadfast guiding principles.

Official journal of the Society for Histochemistry

In 1992, while the journal was still called *Histochemistry*, Jürgen Roth, as Co-Editor-in-Chief, oversaw the process whereby *Histochemistry* was adopted as the official journal of the Society for Histochemistry (see Gössner 2002, for a brilliant descriptive history of the Society for Histochemistry). The journal provides a forum for the wide dissemination of information regarding activities of the Society (Höfler and Drukker 1992), including the invitation for scientists to apply for the Robert Feulgen Prize. This strong affiliation between journal and society remains in place to this day. One of the more tangible results of this affiliation has been the publication of the Society's "Robert Feulgen Lecture". This prestigious international invited lecture honoring Robert Feulgen, the pioneer of DNA histochemistry (Chieco and Derenzini 1999), was first delivered by Olavi Eränkö in 1979, who was followed over the years by numerous notable and internationally recognized scientists (Table 1). In addition to the manuscripts from the Robert Feulgen Lecturers, special individual reviews from

the Robert Feulgen Prize recipients have also been published in the journal (Table 2; for a complete list see http://www.histochemistry.eu). Moreover, since 2004, five eminent scientists have been selected to present the *Histochemistry and Cell Biology* Lecture at either the Annual Symposium of the Society for Histochemistry, or at the International Congress of Histochemistry and Cytochemistry (Table 3), with their presentations likewise published by the journal.

Journal statistics and benefits for authors

In addition to publishing special individual manuscripts such as those arising from the Robert Feulgen lectures and Prize presentations, the journal also continues to publish thematic "Special Issues" devoted to a specific technique or well-timed research topics (Table 4 and cover of this issue).

Looking over the last 10 years of the journal, it has been illuminating and gratifying to realize that for manuscripts published between 2008 (the 50th anniversary of the founding of the journal) and 2018 (the 60th anniversary) in *Histochemistry and Cell Biology,* at least 228 have been downloaded over 1000 times from the journal's website. This includes the classical review on human keratins by Roland Moll's group, with more than 8500 downloads and 571 cites (Moll et al. 2008), a review on single-molecule localization microscopy by Markus Sauer's group (Klein et al. 2014) with more than 4300 downloads and 66 cites, and an introduction to the sugar code by Hans-Joachim Gabius and Jürgen Roth (2017) with about 4100 downloads and 36 cites, as of this writing! For the interested reader, Table 5 provides a more complete list.

Histochemistry and Cell Biology has also been at the forefront of innovations for scientific publishing and author services. In 1995, concomitant with its change of name to the current *Histochemistry and Cell Biology*, the journal announced

publishing policies stipulating that (1) manuscripts will be published in full format without arbitrary page limits, and (2) no charge for the first color plate (Drenckhahn and Roth 1995). These policies were expanded in 2001 to include no charges for any color reproduction in all manuscripts. In 2000, the journal Editors announced a new service for authors called “Online First”, whereby accepted manuscripts were immediately posted online following receipt of the corrected proofs (Editors 2000). This process resulted in a significant decrease in publication time, with the online posting as the official date of publication, along with an assigned unique “Digital Object Identifier” (DOI) which can then be used to access and cite the manuscript. Another feature for authors introduced by the publisher in 2004 was the option of "Springer Open Choice", allowing immediate free access to the published articles. More recently, the “Transfer Desk” option was introduced to assist authors in finding the most relevant journal amongst Springer Nature’s portfolio of over 2500 titles, for disposition of a manuscript determined by the editors to be beyond the scope of *Histochemistry and Cell Biology*.

So, in closing, we cordially invite you to submit your manuscripts to *Histochemistry and Cell Biology*, rich in the knowledge that you will be contributing to a journal with a long-standing history and august reputation in the field.

References

Baratta Jl, Ngo A, Lopez B et al. (2009) Cellular organization of normal mouse liver: a histological, quantitative immunocytochemical, and fine structural analysis. Histochem Cell Biol 131:713-726. Doi: 10.1007/s00418-009-0577-1.

Baumgart E (1997) Application of in situ hybridization, cytochemical and immunocytochemical techniques for the investigation of peroxisomes. A review including novel data. Histochem Cell Biol 108:185-210.

Bhide GP, Colley KJ (2017) Sialylation of N-glycans: mechanism, cellular compartmentalization and function. Histochem Cell Biol 147:149-174. Doi: 10.1007/s00418-016-1520-x.

Bosma M, Minnaard R, Sparks LM et al. (2012) The lipid droplet coat protein perilipin 5 also localizes to muscle mitochondria. Histochem Cell Biol 137:205-216. Doi: 10.1007/s00418-011-0888-x.

Burgert A, Letschert S, Doose S, Sauer M (2015) Artifacts in single-molecule localization microscopy. Histochem Cell Biol 144:123-132. Doi: 10.1007/s00418-015-1340-4.

Carpentier JL (1993) The journey of the insulin receptor into the cell: from cellular biology to pathophysiology. Histochemistry 100:169-184.

Castañón MJ, Walko G, Winter L, Wiche G (2013) Plectin-intermediate filament partnership in skin, skeletal muscle, and peripheral nerve. Histochem Cell Biol 140:33-53. Doi: 10.1007/s00418-013-1102-0.

Chieco P, Derenzini M (1999) The Feulgen reaction 75 years on. Histochem Cell Biol 111:345-358.

Corfield A (2017) Eukaryotic protein glycosylation: a primer for histochemists and cell biologists. Histochem Cell Biol 147:119-147. Doi: 10.1007/s00418-016-1526-4.

Debbage P, Jaschke W (2008) Molecular imaging with nanoparticles: giant roles for

dwarf actors. Histochem Cell Biol 130:845-875. Doi: 10.1007/s00418-008-0511-y.

Deryugina EI, Quigley JP (2008) Chick embryo chorioallantoic membrane model systems to study and visualize human tumor cell metastasis. Histochem Cell Biol 130:1119-1130. Doi: 10.1007/s00418-008-0536-2.

Deschout H, Shivandan A, Annibale P et al. (2014) Progress in quantitative single-molecule localization microscopy. Histochem Cell Biol 142:5-17. Doi: 10.1007/s00418-014-1217-y.

de Wit H (2010) Morphological docking of secretory vesicles. Histochem Cell Biol 134:103-113. Doi: 10.1007/s00418-010-0719-5.

Dirks RW (1996) RNA molecules lighting up under the microscope. Histochemistry 106:151-166.

Drenckhahn D, Roth J (1995) Histochemistry on the move. Histochemistry 103:1

Editors (2000) *Histochemistry and Cell Biology* announces Online First publication. Histochem Cell Biol 113:249. Doi: 10.1007/s004180000133.

Endesfelder U, Malkusch S, Fricke F, Heilemann M (2014) A simple method to estimate the average localization precision of a single-molecule localization microscopy experiment. Histochem Cell Biol 141:629-638. Doi: 10.1007/s00418-014-1192-3.

Förster C (2008) Tight junctions and the modulation of barrier function in disease. Histochem Cell Biol 130:55-70. Doi: 10.1007/s00418-008-0424-9.

Friedl P (2004) Dynamic imaging of cellular interactions with extracellular matrix. Histochem Cell Biol 122:183-190. Doi: 10.1007/s00418-004-0682-0.

Fujimoto T, Ohsaki Y, Cheng J, Suzuki M, Shinohara Y (2008) Lipid droplets: a classic organelle with new outfits. Histochem Cell Biol 130:263-279. Doi: 10.1007/s00418-008-0449-0.

Gabius HJ, Roth J (2017) An introduction to the sugar code. Histochem Cell Biol 147:111-117. Doi: 10.1007/s00418-016-1521-9.

Galvagni F, Baldari CT, Oliviero S, Orlandini M (2012) An apical actin-rich domain drives the establishment of cell polarity during cell adhesion. Histochem Cell Biol 138:419-433. Doi: 10.1007/s00418-012-0965-9.

Giepmans BN (2008) Bridging fluorescence microscopy and electron microscopy. Histochem Cell Biol 130:211-217. Doi: 10.1007/s00418-008-0460-5.

Gössner W (2002) A brief history of the Society for Histochemistry: its founders, its mission and the first 50 years. Histochem Cell Biol 118:91-94. Doi:10.1007/s00418-002-0437-8.

Green CR, Severs NJ (1993) Distribution and role of gap junctions in normal myocardium and human ischaemic heart disease. Histochemistry 99:105-120.

Höfler H, Drukker J (1992) Note from the Society for Histochemistry. Histochemistry 97:2.

Islinger M, Voelkl A, Fahimi HD, Schrader M (2018) The peroxisome: an update on mysteries 2.0. Histochem Cell Biol 150:443-471. https://doi.org/10.1007/s00418-018-1722-5

Kimura H, Hayashi-Takanaka Y, Stasevich TJ, Sato Y (2015) Visualizing posttranslational and epigenetic modifications of endogenous proteins in vivo. Histochem Cell Biol 144:101-109. Doi: 10.1007/s00418-015-1344-0.

Klein T, Proppert S, Sauer M (2014) Eight years of single-molecule localization microscopy. Histochem Cell Biol 141:561-575. Doi: 10.1007/s00418-014-1184-3.

Kolesová H, Capek M, Radochova B et al. (2016) Comparison of different tissue clearing methods and 3D imaging techniques for visualization of GFP-expressing mouse embryos and embryonic hearts. Histochem Cell Biol 146:141-152. Doi: 10.1007/s00418-016-1441-8.

König K (2000) Laser tweezers and multiphoton microscopes in life sciences. Histochem Cell Biol 114:79-92.

Lenne PF (2009) Probing cell-surface dynamics and mechanics at different scales. Histochem Cell Biol 132:247-252. Doi: 10.1007/s00418-009-0620-2.

Lippincott-Schwartz J (2001) The secretory membrane system studied in real-time. Histochem Cell Biol 116:97-107. Doi: 10.1007/s004180100296.

Lorusso G, Rüegg C (2008) The tumor microenvironment and its contribution to tumor evolution toward metastasis. Histochem Cell Biol 130:1019-1103. Doi: 10.1007/s00418-008-0530-8.

Lucic V, Leis A, Baumeister W (2008) Cryo-electron tomography of cells: connecting structure and function. Histochem Cell Biol 130:185-196. Doi: 10.1007/s00418-008-0459-y.

Marks DL, Bittman R, Pagano RE (2008) Use of Bodipy-labeled sphingolipid and cholesterol analogs to examine membrane microdomains in cells. Histochem Cell Biol 130:819-832. Doi: 10.1007/s00418-008-0509-5.

Misgeld T (2005) Death of an axon: studying axon loss in development and disease. Histochem Cell Biol 124:189-196. Doi: 10.1007/s00418-005-0036-6.

Moll R, Divo M, Langbein L (2008) The human keratins: biology and pathology. Histochem Cell Biol 129:705-733. Doi: 10.1007/s00418-008-0435-6.

Nilsson M (2006) Lock and roll: single-molecule genotyping in situ using padlock probes and rolling-circle amplification. Histochem Cell Biol 126:159-164. Doi: 10.1007/s00418-006-0213-2.

Oberdick J (1994) Evidence for a genetically encoded map of functional development in the cerebellum. Histochemistry 102:1-14.

Ohsaki Y, Shinohara Y, Suzuki M, Fujimoto T (2010) A pitfall in using BODIPY dyes to label lipid droplets for fluorescence microscopy. Histochem Cell Biol 133:477-480. Doi: 10.1007/s00418-010-0678-x.

Pombo A (2007) Advances in imaging the interphase nucleus using thin cryosections. Histochem Cell Biol 128:97-104. Doi: 10.1007/s00418-007-0310-x.

Priller J (2003) Grenzgänger: adult bone marrow cells populate the brain. Histochem Cell Biol 120:85-91. Doi: 10.1007/s00418-003-0559-7.

Rizzo R, Parashuraman S, Luini A (2014) Correlative video-light-electron microscopy: development, impact and perspectives. Histochem Cell Biol 142:133-138. Doi: 10.1007/s00418-014-1249-3.

Robertson RT, Levine ST, Haynes SM et al. (2015) Use of labeled tomato lectin for imaging vasculature structures. Histochem Cell Biol 143:225-234. Doi: 10.1007/s00418-014-1301-3.

Römpp A, Spengler B (2013) Mass spectrometry imaging with high resolution in mass and space. Histochem Cell Biol 139:759-783. Doi: 10.1007/s00418-013-1097-6.

Roth J, Fahimi HD, Drenckhahn D (2008) Celebration of the 50th anniversary of publication of Histochemistry and Cell Biology. Histochem Cell Biol 129:1-3. Doi: 10.1007/s00418-007-0353-z.

Roukos V, Misteli T (2014) Deep Imaging: the next frontier in microscopy. Histochem Cell Biol 142:125-131. Doi: 10.1007/s00418-014-1239-5.

Satir P, Christensen ST (2008) Structure and function of mammalian cilia. Histochem Cell Biol 129:687-693. Doi: 10.1007/s00418-008-0416-9.

Schrader M, Fahimi HD (2008) The peroxisome: still a mysterious organelle. Histochem Cell Biol 129:421-440. Doi: 10.1007/s00418-008-0396-9.

Sirri V, Urcuqui-Inchima S, Roussele P, Hernendez-Verdun D (2008) Nucleolus: the fascinating nuclear body. Histochem Cell Biol 129:13-31. Doi: 10.1007/s00418-007-0359.

Speel EJ (1999) Detection and amplification systems for sensitive, multiple-target DNA and RNA in situ hybridization: looking inside cells with a spectrum of colors. Histochem Cell Biol 112:89-113.

Studer D, Humbel BM, Chiquet M (2008) Electron microscopy of high pressure frozen samples: bridging the gap between cellular ultrastructure and atomic resolution. Histochem Cell Biol 130:877-889. Doi: 10.1007/s00418-008-0500-1.

Thiry M (1995) New approaches to in situ detection of nucleic acids. Histochem Cell Biol 104:81-95.

Thurner GC, Debbage P (2018) Molecular imaging with nanoparticles: the dwarf actors revisited 10 years later. Histochem Cell Biol 150:733-794. Doi: 10.1007/s00418-018-1753-y.

Vidak S, Foisner R (2016) Molecular insights into the premature aging disease progeria. Histochem Cell Biol 145:401-417. Doi: 10.1007/s00418-016-1411-1.

Walch A, Rauser S, Deininger SO, Höfler H (2008) MALDI imaging mass spectrometry for direct tissue analysis: a new frontier for molecular histology. Histochem Cell Biol 130:421-434. Doi: 10.1007/s00418-008-0469-9.

Waschke J (2008) The desmosome and pemphigus. Histochem Cell Biol 130:21-54. Doi: 10.1007/s00418-008-0420-0.

Yokota S (2012) Nuage proteins: their localization in subcellular structures of spermatogenic cells as revealed by immunoelectron microscopy. Histochem Cell Biol 138:1-11. Doi: 10.1007/s00418-012-0962-z.

Yunger S, Kalo A, Kafri P et al. (2013) Zooming in on single active genes in living mammalian cells. Histochem Cell Biol 140:71-79. Doi: 10.1007/s00418-013-1100-2.

Yusuf F, Brand-Saberi B (2012) Myogenesis and muscle regeneration. Histochem Cell Biol 138:187-199. Doi: 10.1007/s00418-012-0972-x.

Zimmermann DR, Dours-Zimmermann MT (2008) Extracellular matrix of the central nervous system: from neglect to challenge. Histochem Cell Biol 130: 635-653. Doi: 10.1007/s00418-008-0485-9.

Table 1 Scientists invited for the Robert Feulgen Lecture*

O. Eränkö, Helsinki, Finland
Histochemical observations on the distribution of catecholamines and catecholamine-synthesizing enzymes in the nerve cells and SIF cells of the sympathetic ganglion
Gargellen, Austria, 1979

L.A. Sternberger, Rochester, NY, USA
Immunocytochemistry - Past, present, future
Würzburg, Germany, 1980

G. Pfefferkon, Münster, Germany
Histochemische Analyse mit Licht - und Elektronenstrahlen (Histochemical analysis by light and electron microscopy)
Münster, Germany, 1981

W.E. Stumpf, Chapel Hill, NC, USA
Histochemical characteristics and significance of cell receptors in biology and pathology
Gargellen, Austria, 1982

A.G.E. Pearse, London, UK
The phylogeny of the diffuse neuroendocrine system
Gargellen, Austria, 1983

I.B. Black, New York, NY, USA
Phenotypic plasticity in the nervous system
Maastricht, The Netherlands, 1984

K. Weber, Göttingen, Germany
Cytoskeletal proteins: structure, function, pathology
Göttingen, Germany, 1985

G.C. Bennett, Montreal, Canada
Radioautographic and cytochemical studies of the synthesis and intracellular transport of glycoproteins
Gargellen, Austria, 1986

W.J. Gehring, Basel, Switzerland
The generation of the body plan as studied by in situ hybridization in the developing embryo
Basel, Switzerland, 1987

L.-I. Larsson, Copenhagen, Denmark
Cytochemical detection of regulatory peptides and of mRNA molecules coding for peptide precursors
Gargellen, Austria, 1988

W.W. Franke, Heidelberg, Germany
The intermediate filament cytoskeleton and its association with other structures
Gargellen, Austria, 1989

M.N. Moore, Plymouth, UK
Environmental distress signals: cellular reactions to marine pollution
Gargellen, Austria, 1990

J.E. Dumont, Brussels, Belgium
The surface receptors in the model of the thyroid cell
Ghent, Belgium, 1991

G. Klein, Stockholm, Sweden
The contribution of oncogenes and tumor supressor genes to the multistep development of cancer
Munich, Germany, 1992

S. Rosen, San Francisco, CA, USA
L-selection and its endogenous ligands
Gargellen, Austria, 1993

M.J. Karnovsky, Boston, MA, USA
Cytochemistry and oxy radicals
Heidelberg, Germany, 1994

D. Shotton, Oxford, UK
Electronic light microscopy: Past, present, future
Rigi-Kaltbad, Switzerland, 1995

M. Trendelenburg, Heidelberg, Germany
Novel insights into the nucleolar structural complexity and function
Gargellen, Austria, 1996

K. Simons, Heidelberg, Germany
Biogenesis of a polarized cell surface in epithelial cells
Jena, Germany, 1997

D. Vestweber, Münster, Germany
Molecular mechanisms that control leukocyte extravasation
Giessen, Germany, 1998

A. Willie, Cambridge, UK
Apoptosis in the genesis and treatment of cancer
Gargellen, Austria, 1999

Jennifer Lippincott-Schwartz, Bethesda, MD, USA
Cell cycle maintenance and biogenesis of the Golgi complex
Les Diablerets, Switzerland, 2000

R.G.W. Anderson, Dallas, TX, USA
Caveolae spatially organize signal transduction at the cell surface
Vienna, Austria, 2001

T. Misteli, Bethesda, MD, USA
New views of the cell: Genomics, proteomics and dynamic networks

Vlissingen, The Netherlands, 2002

A. Engel, Basel, Switzerland
Structure and function of membrane channels
Les Diablerets, Switzerland, 2003

S. Fakan, Lausanne, Switzerland
The functional architecture of the nucleus as analyzed by ultrastructural cytochemistry
Prague, Czech Republic, 2004

M. Dahan, Paris, France
From analog to digital: exploring cell dynamics with single quantum dots
Noordwijkerhout, The Netherlands, 2005

Danièle Hernandez-Verdun, Paris, France
The nucleolus: a model for the organization of nuclear functions
Stresa, Lake Maggiore, Italy, 2006

M. Frotscher, Freiburg, Germany
New ways of looking at synapses
Freiburg i.Br., Germany, 2007

K. Takata, Maebashi, Japan
Localization and trafficking of aquaporin 2 in the kidney
Interlaken, Switzerland, 2008

P.J. Peters, Amsterdam, The Netherlands
Cellular organelles as nanomachines
Fulpmes, Austria, 2009

S.W. Hell, Göttingen, Germany
Super resolution microscopy
Prague, Czech Republic, 2010

R.M. Caprioli, Nashville, TN, USA
Molecular imaging of tissue sections by mass spectometry: Providing information beyond the microscope
Munich, Germany, 2011

Marianne Bronner, Pasadena, CA, USA
Regulatory analysis and imaging of neural crest formation and migration
Vienna, Austria, 2012

R. D. Goldman, Chicago, IL, USA
Intermediate filaments: Rare diseases provide insights into their cytoskeletal and nucleoskeletal functions
Prague, Czech Republic, 2013

R. Heeren, Amsterdam, The Netherlands
Molecular scales: Imaging signals of disease with mass spectrometry
Prague, Czech Republic, 2014

Wendy Bickmore, Edinburgh, UK
Transcription, chromatin structure and nuclear organisation: cause and consequence
Vienna, Austria, 2015

T. Alexandrov, Heidelberg, Germany
Metabolite imaging enabled by mass spectrometry and big data analytics
Prague, Czech Republic, 2017

C. Cremer, Mainz, Germany
Nuclear genome nanostructure imaging at single molecule resolution
Prague, Czech Republic, 2018

*This is an updated list based on Gössner (2008).

Table 2 Reviews published by Robert Feulgen Prize recipients

C.R. Green, N.J. Severs, London, UK
Distribution and role of gap junctions in normal myocardium and human ischaemic heart disease
(Green and Severs 1993)

J.L. Carpentier, Geneva, Switzerland
The journey of the insulin receptor into the cell: from cellular biology to pathophysiology
(Carpentier 1993)

J. Oberdick, Columbus, OH, USA
Evidence for a genetically encoded map of functional development in the cerebellum
(Oberdick 1994)

M. Thiry, Liège, Belgium
New approaches to in situ detection of nucleic acids
(Thiry 1995)

R.W. Dirks, Leiden, The Netherlands
RNA molecules lighting up under the microscope
(Dirks 1996)

Eveline Baumgart, Heidelberg, Germany
Application of in situ hybridization, cytochemical and immunocytochemical techniques for the investigation of peroxisomes. A review including novel data
(Baumgart 1997)

E.J. Speel, Zürich, Switzerland
Detection and amplification systems for sensitive, multiple-target DNA and RNA in situ hybridization: looking inside cells with a spectrum of colors
(Speel 1999)

K. König, Jena, Germany
Laser tweezers and multiphoton microscopes in life sciences
(König 2000)

Jennifer Lippincott-Schwartz, Bethesda, MD, USA
The secretory membrane system studied in real-time
(Lippincott-Schwartz 2001)

J. Priller, Berlin, Germany
Grenzgänger: adult bone marrow cells populate the brain
(Priller 2003)

T. Misgeld, Cambridge, MA, USA
Death of an axon: studying axon loss in development and disease
(Misgeld 2005)

M. Nilsson, Uppsala, Sweden
Lock and roll: single-molecule genotyping in situ using padlock probes and rolling-circle amplification
(Nilsson 2006)

Ana Pombo, London, UK
Advances in imaging the interphase nucleus using thin cryosections
(Pombo 2007)

B.M. Giepmans, Groningen, The Netherlands
Bridging fluorescence microscopy and electron microscopy
(Giepmans 2008)

P.F. Lenne, Marseille, France
Probing cell-surface dynamics and mechanics at different scales
(Lenne 2009)

Heidi de Wit, Amsterdam, The Netherlands
Morphological docking of secretory vesicles
(de Wit 2010)

A. Römmp, Giessen, Germany
Mass spectrometry imaging with high resolution in mass and space.
(Römpp and Spengler 2013)

Y. Shav-Tal, Ramat Gan, Israel
Zooming in on single active genes in living mammalian cells
(Yunger et al. 2013)

T. Misteli, Bethesda, MD, USA
Deep imaging: the next frontier in microscopy
(Roukos and Misteli 2014)

H. Kimura, Yokohama, Japan
Visualizing posttranslational and epigenetic modifications of endogenous proteins in vivo
(Kimura et al. 2015)

Table 3 Scientists selected for the *Histochemistry and Cell Biology* Lecture

P. Friedl, University of Würzburg, Germany
Dynamic Imaging of Cellular Interactions with Extracellular Matrix
Delivered at the 12th International Congress of Histochemistry and Cytochemistry, La Jolla, CA, USA, 2004
(Friedl 2004)

W. Baumeister, Max Planck Institute for Biochemistry, Martinsried, Germany
Cryo-Electron Tomography of Cells: Connecting Structure and Function
Delivered at the 50th Symposium of the Society for Histochemistry, Interlaken, Switzerland, 2008
(Lucic et al. 2008)

S. Yokota, Nagasaki International University, Nagasaki, Japan
Nuage Proteins: their Localization in Subcellular Structures of Spermatogenic Cells as Revealed by Immunoelectron Microscopy
Delivered at the 14th International Congress of Histochemistry and Cytochemistry, Kyoto, Japan, 2012
(Yokota 2012)

A. Luini, Consiglio Nazionale Delle Ricerche and Telethon Institute for Genetics and Medicine, Naples, Italy
Correlative Video-Light-Electron Microscopy: Development, Impact and Perspectives
Delivered at the 56th Symposium of the Society for Histochemistry, Prague, Czech Republic, 2014
(Rizzo et al. 2014)

M. Sauer, University of Würzburg, Würzburg, Germany
Artifacts in Single-Molecule Localization Microscopy
Delivered at the 57th Symposium of the Society for Histochemistry, Vienna, Austria, 2015
(Burgert et al. 2015)

Table 4 Special Issues published by *Histochemistry and Cell Biology*

25 Years of Colloidal Gold Labeling
Editor: J. Roth, Zurich, Switzerland
Volume 106, issue 1, 1996

In Situ Hybridization and Related Techniques
Editors: H. Höfler, Munich, Germany and A.K. Raap, Leiden, The Netherlands
Volume 108, issues 4 and 5, 1997

Centennial of the Golgi Apparatus
Editors: Margit Pavelka, Vienna, Austria and D.J. Morré, West Lafayette, IN, USA
Volume 109, issues 5 and 6, 1998

Histochemistry in Gene Technology
Editors: F.T. Bosman, Lausanne and J. Roth, Zurich, Switzerland
Volume 115, issue 1, 2001

Secretion, Endocytosis, Quality Control
Editors: Margit Pavelka, Vienna, Austria and J. Roth, Zurich, Switzerland
Volume 117, issue 2, 2002

Active Oxygen and Nitrogen Species in Biology
Editors: J.M. Robinson, Columbus, OH, USA, H. Seguchi, Kochi, Japan and J.A. Badwey, Boston, MA, USA
Volume 122, issue 4, 2004

Functional Structure of the Cell Nucleus
Editors: P. Hozák, Prague, Czech Republic and S. Fakan, Lausanne, Switzerland
Volume 125, issues 1 and 2, 2006

In Focus: Intermediate Filaments
Editors: P. Hozák, Prague, Czech Republic, P. Debbage, Innsbruck, Austria and J. Roth, Zurich, Switzerland
Volume 140, issue 1, 2013

In Focus: Golgi Apparatus
Editors: Margit Pavelka, Vienna, Austria and J. Roth, Zurich, Switzerland
Volume 140, issues 3 and 4, 2013

In Focus: Single-Molecule Super-Resolution Microscopy
Editors: M. Heilemann, Frankfurt a.M., Germany and J. Roth, Zurich, Switzerland
Volume 141, issue 6 and volume 142, issue 1, 2014

In Focus: The Cell Nucleus
Editors: Klara Weipoltshammer and Ch. Schöfer, Vienna, Austria
Volume 145, issue 4, 2016

In Focus: From Cell Biology to Tissue Structure and Function
Editor: Esther Asan, Würzburg, Germany
Volume 146, issue 6, 2016

In Focus: The Sugar Code
Editors: H.-J. Gabius, Munich, Germany and J. Roth, Zurich, Switzerland
Volume 147, issue 2, 2017

In Focus: Hard Tissue Biology
Editors N. Amizuka, Sapporo and S. Kitazawa, Toon, Japan
Volume: 149, issue 4, 2018

Table 5 Article impact assessed as number (*n*) of pdf downloads and citations*

*n***	Article
8500 / 571	Moll et al.: The human keratins: biology and pathology (Moll et al. 2008)
6600 / 170	Römpp & Spengler: Mass spectrometry imaging with high resolution in mass and space (Römpp and Spengler 2013)
5400 / 233	Lorusso & Rüegg: The tumor microenvironment and its contribution to tumor evolution toward metastasis (Lorusso and Rüegg 2008)
5100 / 97	Satir & Christensen: Structure and function of mammalian cilia (Satir and Christensen 2008)
5000 / 190	Walch et al.: MALDI imaging mass spectrometry for direct tissue analysis: a new frontier for molecular histology (Walch et al. 2008)
4900 / 272	Förster: Tight junctions and the modulation of barrier function in disease (Förster 2008).
4800 / 59	Baratta et al.: Cellular organization of normal mouse liver: a histological, quantitative immunocytochemical, and fine structural analysis (Baratta et al. 2009)
4500 / 39	Vidak & Foisner: Molecular insights into the premature aging disease progeria (Vidak and Foisner 2016)
4300 / 66	Klein et al.: Eight years of single-molecule localization microscopy (Klein et al. 2014)
4100 / 36	Gabius & Roth: An introduction to the sugar code (Gabius and Roth 2017)
4100 / 197	Zimmermann & Dours-Zimmermann: Extracellular matrix of the central nervous system: from neglect to challenge (Zimmermann and Dours-Zimmermann 2008)
3900 / 33	Robertson et al.: Use of labeled tomata lectin for imaging vascular structures (Robertson et al. 2015)
3800 / 140	Debbage & Jaschke: Molecular imaging with nanoparticles: giant roles for dwarf actors (Debbage and Jeschke 2008, Thurner and Debbage 2018)

3200 / 122 Studer et al.: Electron microscopy of high pressure frozen samples: bridging the gap between cellular ultrastructure and atomic resolution
(Studer et al. 2008)

3100 / 204 Fujimoto et al.: Lipid droplets: a classical organelle with new outfits
(Fujimoto et al. 2008)

3100 / 6 Galvagni et al.: An apical actin-rich domain drives the establishment of cell polarity during cell adhesion
(Galvagni et al. 2012)

3100 / 24 Kolesova et al.: Comparison of different tissue clearing methods and 3D imaging techniques for visualization of GFP-expressing mouse embryos and embryonic hearts
(Kolesova et al. 2016)

3100 / 42 Ohsaki et al.: A pitfal in using BODIPY dyes to label lipid droplets for fluorescence microscopy
(Ohsaki et al. 2010)

3000 / 43 Deschout et al.: Progress in quantitative single molecule localization microscopy
(Deschout et al. 2014)

3000 / 98 Schrader & Fahimi: The peroxisome: still a mysterious organelle
(Schrader and Fahimi 2008, Islinger et al. 2018)

3000 / 212 Sirri et al.: Nucleolus: the fascinating nuclear body
(Sirri et al. 2008)

2700 / 45 Castañón et al.: Plectin-intermediate filament partnership in skin, skeletal muscle, and peripheral nerve
(Castañón et al. 2013)

2700 / 60 Giepmans: Bridging fluorescence Microscopy and electron microscopy
(Giepmans 2008)

2700 / 37 Corfield: Eukaryotic protein glycosylation: a primer for histochemists and cell biologists
(Corfield 2017)

2700 / 98 Deryugina & Quigley: Chick embryo chorioallantoic membrane model system to study and visualize human tumor cell metastasis
(Deryugina and Quigley 2008)

2700 / 79 Marks et al.: Use of Bodipy-labeled sphingolipid and cholesterol analogs to examine membrane microdomains in cells
(Marks et al. 2008)

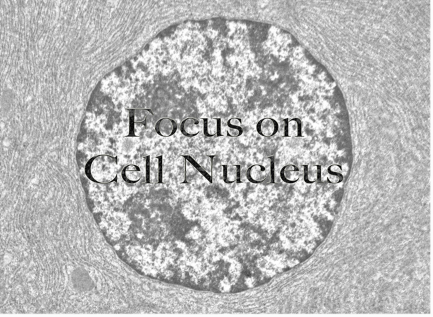
2600 / 68 Endesfelder et al.: A simple method to estimate the average localization precision of a single-molecule localization microscopy experiment
(Endesfelder et al. 2014)

2500 / 39	Bhide & Colley: Sialylation of N-glycans: mechanism, cellular compartmentalization and function (Bhide and Colley 2017)
2500 / 89	Bosma et al.: The lipid droplet coat protein prilipin 5 also localizes to muscle mitochondria (Bosma et al. 2012)
2500 / 21	Kimura et al.: Visualizing posttranslational and epigenetic modifications of endogenous proteins in vivo (Kimura et al. 2015)
2500 /101	Waschke: The desmosome and pemphigus (Waschke 2008)
2500 / 28	Yusuf & Brand-Saberi: Myogenesis and muscle regeneration (Yusuf and Brand-Saberi 2012)

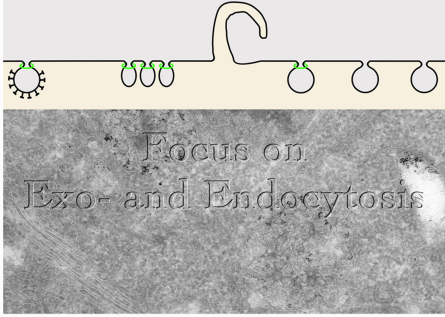
---

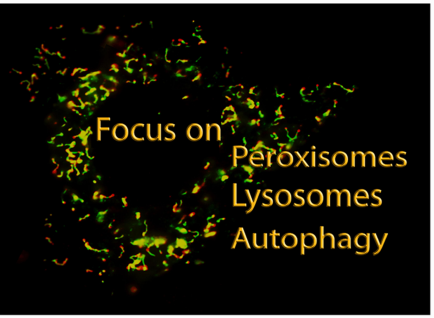
*Manuscripts published between 2008 and 2018.
**Threshold number of pdf downloads ≥ 2500 as per April 2019.

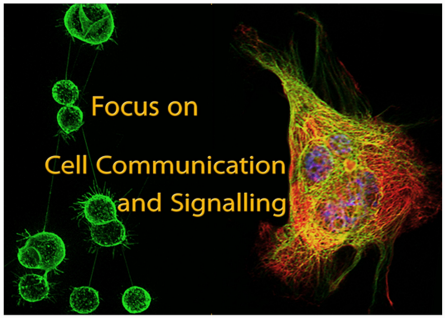
Figure 1. The collage shows the cover pictures of the twelve issues of *Histochemistry and Cell Biology* published on the occasion of the journal's 50th anniversary in 2008. They illustrate the long and distinguished history of the journal in publishing histochemical methods in the broadest sense, together with molecular imaging techniques for the localization, identification and characterization of cellular and extracellular components as well as metabolic activities under physiological and pathological conditions.

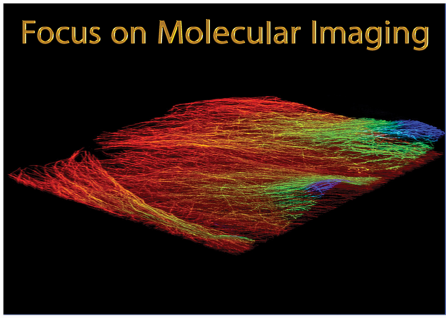

Focus on
Cell Nucleus

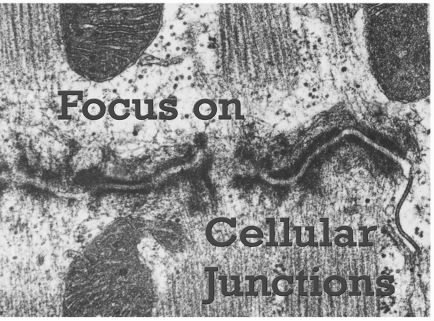

Focus on
Endoplasmic Reticulum
and Golgi apparatus

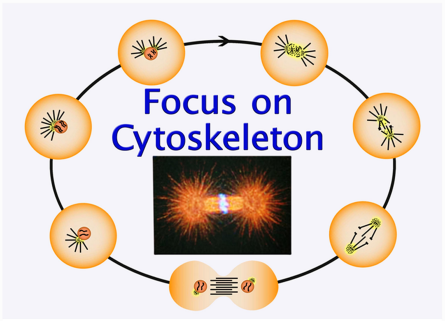

Focus on
Exo- and Endocytosis

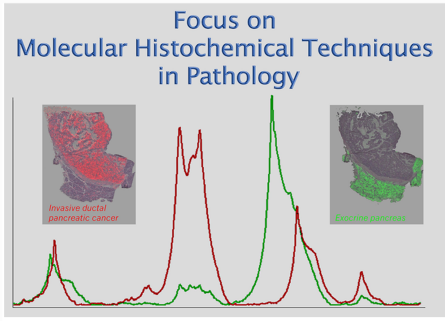

Focus on
Peroxisomes
Lysosomes
Autophagy

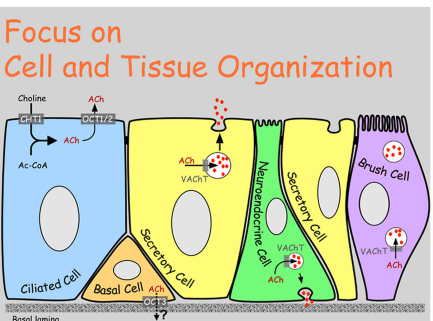

Focus on
Cell Communication
and Signalling

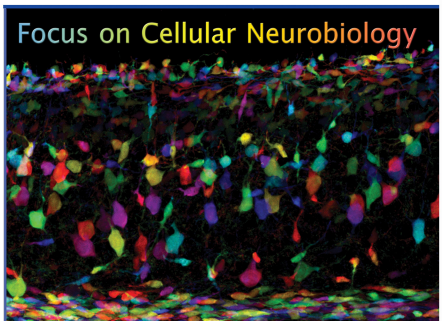

Focus on Molecular Imaging

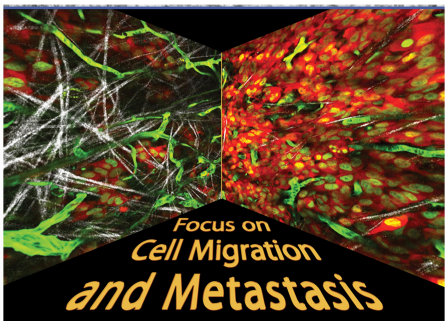

Focus on
Cellular
Junctions


Focus on
Cytoskeleton


Focus on
Molecular Histochemical Techniques
in Pathology
Invasive ductal
pancreatic cancer
Exocrine pancreas


Focus on
Cell and Tissue Organization
Choline
ACh
CHT1
OCT1/2
ACh
Ac-CoA
ACh
VAChT
Neuroendocrine Cell
Secretory Cell
Brush Cell
Ciliated Cell
Secretory Cell
Basal Cell
ACh
Ca2+
VAChT
ACh
VAChT
ACh
Basal lamina


Focus on Cellular Neurobiology


Focus on
Cell Migration
and Metastasis