In focus in HCB

Douglas J. Taatjes¹ · Jürgen Roth²

Accepted: 16 January 2017 / Published online: 1 March 2017
© Springer-Verlag Berlin Heidelberg 2017

There are multiple ways to assess the overall impact of a scientific article, and this is a matter of ongoing discussion (Callaway 2016; Hicks et al. 2015). The number of times an article has been downloaded as a pdf and read may provide an informative snapshot in this regard. The volume 145 of *Histochemistry and Cell Biology* consisted of six issues, comprising 49 articles, published between January and June 2016. By establishing a somewhat subjective criterion of “highly read” representing an article whose pdf was downloaded ≥ 400 times, 29% of the articles published in volume 145 fell into this category (Table 1); the remaining 71% of articles were downloaded between 100 and <400 times.

Here, we will briefly highlight the findings of four articles appearing in the current issue. Spiral ganglion neurons (SGN), which transmit auditory signals from the cochlear to the brain, are essential components of normal hearing. Since high mobility group box 1 protein (HMGB1) was recently shown to regulate epithelial reorganization of the organ of Corti after hair cell loss induced by treatment with the aminoglycoside antibiotic amikacin (Ladrech et al. 2013), Ladrech and colleagues (2017) have now investigated whether HMGB1 may also be involved in mediating early stress responses in SGNs. They found that HMGB1 and p-c-Jun (an activated form of an early stress-activated transcription factor) accumulated in the nuclei of the SGNs (see journal cover image), while BCL2 (an indicator of

apoptosis) was found over-expressed in the cytoplasm during neuronal recovery from amikacin-induced structural damage. The authors speculate that HMGB1 may act in allowing enhanced access for p-c-Jun to nuclear DNA, perhaps thus promoting activation of transcription factors involved in cell repair mechanisms.

It is well established that during the first trimester of pregnancy, extravillous trophoblasts (EVTs) not only migrate and invade the decidual interstitium serving to anchor the placenta to the uterus, they also modify the spiral arteries during this invasion; however, whether EVT in a likewise manner invade and modify uterine veins has not been definitively determined. Moser et al. (2017) have now addressed this question using stereological principles combined with serial section immunohistochemistry to differentiate between arteries and veins. Most interestingly, and perhaps surprisingly, this very elegant and careful evaluation showed that uterine veins are actually significantly more invaded by ETVs than uterine arteries during early pregnancy. This is a most striking finding and may potentially represent a paradigm shift in the area of placental teaching and research. The authors speculate that the EVT invasion of uterine veins during the first trimester of pregnancy may serve in the draining of waste materials and blood plasma from intervillous spaces.

Ephrin receptors and Ephrin ligands are important for cell adhesion and migration. Konda et al. (2017) investigated the potential role the Ephrin receptor EphA2 and the Ephrin ligand ephrin-A1 play in mouse spleen for macrophage/monocyte immigration and emigration. Both EphA2 and ephrin-A1 were found to be predominantly expressed in the vascular endothelial cells of the marginal zone and the red pulp. A monocyte/macrophage cell line expressing an EphA2 lacking the kinase domain was used for in vivo cell infiltration assays. These results indicated

✉ Douglas J. Taatjes
douglas.taates@uvm.edu

¹ Department of Pathology and Laboratory Medicine, The University of Vermont College of Medicine, Burlington, VT 05405, USA

² University of Zurich, 8091 Zurich, Switzerland

Table 1 Article impact assessed as number of pdf downloads (*n*)

<i>n</i>	Article
>2100	Vidak and Foisner: Molecular insights into the premature aging disease progeria
995	Weipoltshammer and Schöfer: Morphology of nuclear transcription
988	Buttler et al.: Integration of CD45-positive leukocytes into newly forming lymphatics of adult mice
746	Kristó et al.: Actin, actin-binding proteins, and actin-related proteins in the nucleus
670	Yu et al.: Expression of area-specific M2-macrophage phenotype by recruited rat monocytes in duct-ligation pancreatitis
568	Podlasz et al.: Galanin regulates blood glucose level in the zebrafish: a morphological and functional study
516	Chen et al.: A novel interaction between ATOH8 and PPP3CB
506	Smirnov et al.: Nucleolar DNA: the host and the guests
487	Sun et al.: Pharmacokinetic and pharmacometabolomic study of pirfenidone in normal mouse tissues using high mass resolution MALDI-FTICR-mass spectrometry imaging
416	André et al.: Merging carbohydrate chemistry with lectin histochemistry to study inhibition of lectin binding by glycoclusters in the natural tissue context
404	Zhou et al.: Induction of initial steps of angiogenic differentiation and maturation of endothelial cells by pericytes in vitro and the role of collagen IV
402	Arastoo et al.: Phospholipase C- η 2 interacts with nuclear and cytoplasmic LIMK-1 during retinoic acid-stimulated neurite growth
400	Abdelgawad et al.: Early reversal cells in adult human bone remodeling: osteoblastic nature, catabolic functions and interactions with osteoclasts
400	Yamazaki et al.: Nuclear F-actin enhances the transcriptional activity of β -catenin by increasing its nuclear localization and binding to chromatin

Articles published between January and June 2016. Number of pdf downloads as per 31 December 2016

that the EphA/ephrin-A system regulates transendothelial migration, infiltration, and lodgment of monocytes/macrophages in the red pulp of the spleen and that the truncated EphA2 enhances this process.

Dentin matrix protein1 (Dmp1) is an acidic phosphoprotein of osteocytes proposed to participate in bone and dentin mineralization. Dmp1 becomes proteolytically cleaved by PHEX protein in N- and C-terminal fragments, the latter being phosphorylated and considered to be the functional domain. Oya et al. (2017) report now that C-terminal Dmp1 becomes phosphorylated by Fam20C in the Golgi apparatus of osteoblast, osteoid, and young osteocytes present in the superficial bone layer and afterwards is secreted into the pericanalicular matrix of mineralized bone. Here, at the mineralization front, it may initiate hydroxyapatite formation and may be involved in collagen matrix mineralization.

References

- Abdelgawad ME, Delaisse JM, Hinge M et al (2016) Early reversal cells in adult human bone remodeling: osteoblastic nature, catabolic functions and interactions with osteoclasts. *Histochem Cell Biol* 145:603–615
- André S, Kaltner H, Kayser K et al (2016) Merging carbohydrate chemistry with lectin histochemistry to study inhibition of lectin binding by glycoclusters in the natural tissue context. *Histochem Cell Biol* 145:185–199
- Arastoo M, Hacker C, Popovics P et al (2016) Phospholipase C- η 2 interacts with nuclear and cytoplasmic LIMK-1 during retinoic acid-stimulated neurite growth. *Histochem Cell Biol* 145:163–173
- Buttler K, Lohrberg M, Gross G et al (2016) Integration of CD45-positive leukocytes into newly forming lymphatics of adult mice. *Histochem Cell Biol* 145:629–636
- Callaway E (2016) Publishing elite turns against impact factor. *Nature* 535:210–211
- Chen J, Balakrishnan-Renuka A, Hagemann N et al (2016) A novel interaction between ATOH8 and PPP3CB. *Histochem Cell Biol* (2016) 145: 5–16
- Hicks D, Wouters P, Waltman L, de Rijke S, Rafols I (2015) The Leiden Manifesto for research metrics. *Nature* 520:429–431
- Konda N, Saeki N, Nishino S, Ogawa K (2017) Truncated EphA2 likely potentiates cell adhesion via integrins as well as infiltration and/or lodgment of a monocyte/macrophage cell line in the red pulp and marginal zone of the mouse spleen, where ephrin-A1 is prominently expressed in the vasculature. *Histochem Cell Biol*. doi:10.1007/s00418-016-1494-8
- Kristó I, Bajusz I, Bajusz C et al (2016) Actin, actin-binding proteins, and actin-related proteins in the nucleus. *Histochem Cell Biol* 145:373–388
- Ladrech S, Mathieu M, Puell JL (2013) Supporting cells regulate the remodelling of aminoglycoside-injured organ of Corti, through the release of high mobility group box 1. *Eur J Neurosci* 38:2962–2972
- Ladrech S, Wang J, Mathieu M et al (2017) High mobility group box 1 (HMGB1): dual functions in the cochlear auditory neurons in response to stress? *Histochem Cell Biol*. doi:10.1007/s00418-016-1506-8
- Moser G, Weiss G, Sundl M et al (2017) Extravillous trophoblasts invade more than uterine arteries: evidence for the invasion of uterine veins. *Histochem Cell Biol*. doi:10.1007/s00418-016-1509-5
- Oya K, Ishida K, Nishida T et al (2017) Immunohistochemical analysis of dentin matrix protein 1 (Dmp1) phosphorylation by Fam20C in bone: implications for the induction

- of biomineralization. *Histochem Cell Biol*. doi:[10.1007/s00418-016-1490-z](https://doi.org/10.1007/s00418-016-1490-z)
- Podlasz P, Jakimiuk A, Chmielewska-Krzesinska M et al (2016) Galanin regulates blood glucose level in the zebrafish: a morphological and functional study. *Histochem Cell Biol* 145:105–116
- Smirnov E, Cmarko D, Mazel T et al (2016) Nucleolar DNA: the host and the guests. *Histochem Cell Biol* 145:359–372
- Sun N, Fernandez IE, Wei M et al (2016) Pharmacokinetic and pharmacometabolomic study of pirfenidone in normal mouse tissues using high mass resolution MALDI-FTICR-mass spectrometry imaging. *Histochem Cell Biol* 145:201–211
- Vidak S, Foisner R (2016) Molecular insights into the premature aging disease progeria. *Histochem Cell Biol* 145:401–417
- Weipoltshammer K, Schöfer C (2016) Morphology of nuclear transcription. *Histochem Cell Biol* 145:343–358
- Yamazaki S, Yamamoto K, de Lanerolle P et al (2016) Nuclear F-actin enhances the transcriptional activity of β -catenin by increasing its nuclear localization and binding to chromatin. *Histochem Cell Biol* 145:389–399
- Yu E, Goto M, Ueta H et al (2016) Expression of area-specific M2-macrophage phenotype by recruited rat monocytes in duct-ligation pancreatitis. *Histochem Cell Biol* 145:659–673
- Zhou Z, Pausch F, Schlötzer-Schrehardt U et al (2016) Induction of initial steps of angiogenic differentiation and maturation of endothelial cells by pericytes in vitro and the role of collagen IV. *Histochem Cell Biol* 145:511–525