

IJAE

Italian Journal of Anatomy and Embryology

Official Organ of the Italian Society
of Anatomy and Histology

72° CONGRESSO
della Società Italiana di Anatomia e Istologia

72TH MEETING
of the Italian Society of Anatomy and Histology

Parma 20-22 september 2018



Vol. 123
N. 1 (Supplement)

2018

ISSN 1122-6714



IJAE

Italian Journal of Anatomy and Embryology

Official Organ of the Italian Society of Anatomy and Histology

Founded by Giulio Chiarugi in 1901

Editor-in-Chief

Paolo Romagnoli

Assistant Editors

Maria Simonetta Pellegrini Faussonne

Gabriella B. Vannelli

Past-Editors

I. Fazzari – E. Allara – G.C. Balboni – E. Brizzi – G. Gheri

Editorial Board

Sergio Adamo (University of Rome “La Sapienza”, Italy)

Giuseppe Anastasi (University of Messina, Italy)

Pepa Atanassova (Plovdiv, Bulgaria)

Daniele Bani (University of Florence, Italy)

Raffaele De Caro (University of Padua, Italy)

Mirella Falconi Mazzotti (University of Bologna, Italy)

Antonio Filippini (University of Rome “La Sapienza”, Italy)

Eugenio Gaudio (University of Rome “La Sapienza”, Italy)

Krzysztof Gil (Jagiellonian University of Krakow, Poland)

Menachem Hanani (Hebrew University of Jerusalem)

Nadir M. Maraldi (University of Bologna, Italy)

Hanne B. Mikkelsen (University of Copenhagen)

Giovanni Orlandini (University of Florence, Italy)

Maria Simonetta Pellegrini Faussonne (University of Florence, Italy)

Alessandro Riva (University of Cagliari, Italy)

Ajai K. Srivastav (Gorakhpur, India)

Gabriella B. Vannelli (University of Florence, Italy)

Contact

Prof. Paolo Romagnoli

Department of Anatomy, Histology and Forensic Medicine

Section “Enrico Allara”, Viale Pieraccini 6, 50139 Firenze (Italy)

Phone: +39 055 4271389 - Fax: +39 055 4271385

E-mail: paolo.romagnoli@unifi.it - ijae@unifi.it

Journal e-mail: ijae@unifi.it – **Web site:** <http://www.fupress.com/ijae>

2018 Firenze University Press

Firenze University Press

via Cittadella, 7

I-50144 Firenze, Italy

E-mail: journals@fupress.com

Available online at

<http://www.fupress.com/ijae>

Copyright: © 2018 the author(s). This is an open access, peer-reviewed issue published by Firenze University Press and distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

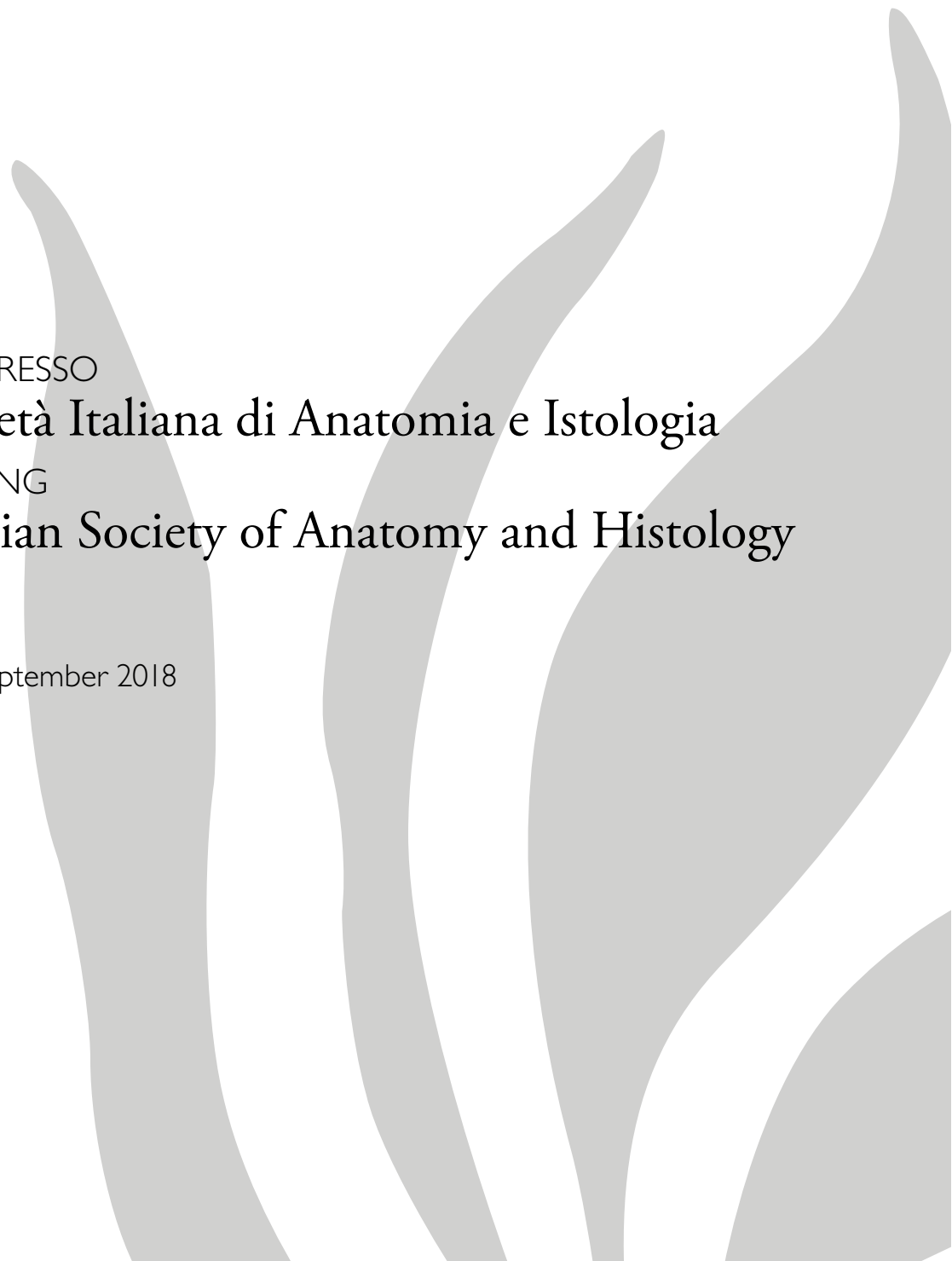
IJAE

Italian Journal of Anatomy and Embryology

Official Organ of the Italian Society
of Anatomy and Histology

72° CONGRESSO
della Società Italiana di Anatomia e Istologia
72TH MEETING
of the Italian Society of Anatomy and Histology

Parma 20-22 september 2018



Biliary tree stem cells and peribiliary glands are involved in primary sclerosing cholangitis and cholangiocarcinoma

Diletta Overi¹, Guido Carpino², Romina Mancinelli¹, Vincenzo Cardinale³, Tom Hemming Karlsen⁴, Domenico Alvaro⁵ and Paolo Onori¹

¹Sapienza Università di Roma, Dipartimento di Scienze Anatomiche, Istologiche, Medico Legali e dell'Apparato Locomotore, Roma, Italia

²Università degli Studi di Roma "Foro Italico", Dipartimento di Scienze Motorie, Umane e della Salute, Roma, Italia

³Sapienza Università di Roma, Dipartimento di Scienze e Biotecnologie Medico-Chirurgiche, Latina, Italia

⁴Oslo University Hospital Rikshospitalet, Division of Cancer, Surgery and Transplantation, Department of Transplantation Medicine, Oslo, Norvegia

⁵Sapienza Università di Roma, Dipartimento di Medicina Interna e Specialità Mediche, Roma, Italia

Peribiliary glands (PBGs) represent the niche of biliary tree stem/progenitor cells (BTSCs) [1]. BTSCs are multipotent stem cells able to differentiate into hepatocytes, cholangiocytes, and pancreatic islets. Primary sclerosing cholangitis (PSC) is a chronic inflammation involving extra-hepatic biliary tree, and is complicated by the risk of cholangiocarcinoma (CCA) development [2]. We aimed to evaluate the involvement of PBGs and BTSCs in PSC and their role in CCA insurgence [2]. Specimens from normal liver (N=5), PSC (N=20), and CCA arising in PSC patients (N=20) were included and processed for histology, immunohistochemistry and immunofluorescence. In vitro experiments were performed on human BTSCs and primary CCA cell cultures. PSC-affected ducts were characterized by the activation of BTSCs and by PBG hyperplasia. In PSC, ducts showed higher microvascular density around PBGs compared to normal ducts. In CCA arising in PSC patients, PBGs showed dysplastic and neoplastic aspects. Compared to non-cancerous ducts, neoplastic ducts showed higher inflammation, wall thickness, and PBG activation. CCAs were characterized by higher expression of epithelial-to-mesenchymal transition (EMT) traits in PBGs and by the absence of primary cilia in BTSCs compared to control ducts. In vitro study confirmed that human BTSCs, under inflammatory milieu, increased proliferation rate and expression of EMT traits, and lost primary cilia compared to control conditions. In conclusion, patients affected by PSC are characterized by PBG involvement and activation of BTSC niche; the insurgence of CCA was characterized by involvement of PBG niche, suggesting a key role of this cell compartment in progressive tumorigenesis.

The study was supported by research project grant from Sapienza University of Rome.

References

- [1] Carpino et al. (2015) Activation of biliary tree stem cells within peribiliary glands in primary sclerosing cholangitis. *J Hepatol* 63:1220-1228.
- [2] Banales et al. (2016). Cholangiocarcinoma: current knowledge and future perspectives consensus statement from the European Network for the Study of Cholangiocarcinoma (ENSCCA). *Nat Rev Gastroenterol Hepatol* 13:261-280.

Key words

Peribiliary glands, stem cells, angiogenesis, primary sclerosing cholangitis.