EAA Centre Zagreb and EAA Centre Copenhagen

under the auspices of the European Academy of Andrology (EAA)

EAA WINTER SCHOOL

Testis Histology and Pathology for Clinical Andrologists and Embryologists

Zagreb, 3-6 December 2019

100th Anniversary
University of Zagreb School of Medicine

Organizational details

Organizers: EAA Centre Zagreb and EAA Centre Copenhagen, under the auspices of the European Academy of Andrology (EAA)

Who should apply: Clinical andrologists and embryologists; urologists, gynaecologists, clinical biologists, human reproduction technicians and others dealing with testicular biopsy and MAR test

No. of participants: max. 15

Fee: Junior residents 100 €; EAA members 250 €; Others: 350 €

No. of EAA travel grants available: 5 (350 € each)

No. of EAA credits: 5

Application details: *see* www.andrologyacademy.net

DEADLINE for application: 15 September 2019

Contact: jasna.turkovic@mef.hr; Phone: +385 1 45 66 903

Dear colleagues,

It is our pleasure to welcome you to the *Testis Histology and Pathology for Clinical Andrologists and Embryologists* winter school to be held 3-6 December 2019, at the University of Zagreb, School of Medicine. The winter school is jointly organised by European academy of andrology (EAA) training centres Copenhagen and Zagreb.

The idea of the winter school is to bring together experts from various fields of the booming science of andrology and unite them in the various theoretical and practical aspects of their profession.

The objectives of this winter school will address the following:

- Refreshing the knowledge of clinical andrologists and clinical embryologists/biologists on normal testis morphology, in particular spermatogenesis;
- Enhancing the knowledge on various degrees of damage of spermatogenesis; make them familiar with the current classifications of spermatogenesis damage;
- Demonstrating open biopsy of the testis – TESE and mTESE, spermatozoa harvesting from testicular biopsy;
- Genetic and epigenetic factors influencing male fertility/infertility (essentials)
- Delivering basic knowledge on testicular dysgenesis syndrome and the early detection of germ cell neoplasia in situ (GCNIS) testis;
- Presenting novel tumour markers and modern classification of testicular tumours;
- Presenting the current EU regulations regarding sperm and testicular tissue bio-banking.

On behalf of the EAA training centre Zagreb and our colleagues from EAA centre Copenhagen we wish you a successful winter school and enjoyable stay in Zagreb, the oldest centre of academic and research excellence in this part of Europe, hoping you will appreciate its multicultural atmosphere, vibrant life and picturesque scenery. We also hope you will enjoy the famous Zagreb Christmas market that already won three times the title of the best Christmas market in Europe.

Davor Ježek, MD, PhD
Director of EAA Centre Zagreb

Niels Jørgensen, MD, PhD
Director of EAA Centre Copenhagen

COURSE PROGRAMME

Tuesday, 3 December 2019

Location: Department of Histology and Embryology, University of Zagreb School of Medicine, Šalata 3

8.30 – 8.40	**Introduction: Programme Overview** *Davor Ježek*
8.45 – 9.30	**Initial test**
9.30 – 10.15	Lecture 1: **Essentials of testis histological techniques** Tissue fixation; dehydration, embedding; tissue sectioning, standard staining hemalaun eosin; basic principles of immunohistochemistry techniques (IHC); markers of various testis cell types *Davor Ježek*
10.15 – 10.30	**Coffee break**
10.30 – 11.45	Practicals 1: **Back to the lab** Step-by-step demonstration of testis tissue fixation, dehydration, embedding, sectioning, staining etc. (Participants will be able to section their own sections and stain them; "see my sections") *Davor Ježek, Ana Katušić Bojanac, Ana Planinić and laboratory technicians*
11.50 – 13.00	Practicals 2: **Back to lab** Immunohistochemistry (IHC) reactions; section pre-conditioning; section incubation; buffers; application of primary antibody; use of secondary antibody and augmentation complex; application of the chromogen, visualization of the IHC reactions; "see my IHC slide"; Y chromosome microdeletions, epigenetic analysis (pyrosequencing) - essentials *Davor Ježek, Ana Katušić Bojanac, Nino Sinčić, Ana Planinić and laboratory technicians*
13.00 – 14.00	**Lunch**
14.00 – 14.45	Lecture 2: **Normal histology of the testis** Emphasis on normal spermatogenesis; regular structure of seminiferous tubules; seminiferous epithelium; Sertoli cells and spermatogenic cells; spermiogenesis; round late spermatids and spermatozoa; testicular interstitial tissue; "excretory" part of the testis: straight tubules, rete and mediastinum testis, efferent ducts, epididymis *Ana Katušić Bojanac*
14.45 – 15.00	**Coffee break**
15.00 – 17.00	Practicals 3: **Normal histology of the testis** Real-time microscopy, "see my slide"; parallel projection of slides and discussion *Davor Ježek, Ana Katušić Bojanac, Ana Planinić*
17.00 – 17.45	Lecture 3: ***In vitro* spermatogenesis: current state and future developments** *Stefan Schlatt*
17.45 - 17.55	Discussion
17.55 - 18.00	**Wrap-up of Day 1; Take-home messages; Programme overview of Day 2** *Davor Ježek*

Wednesday, 4 December 2019

Location: University Hospital Zagreb, Department of Urology, Kišpatićeva 12

8.30 – 9.15	Lecture 4: **From Testicular Biopsy to Human Embryo** *Željko Kaštelan, Dinko Hauptman, Davor Ježek* *Location: University Hospital Zagreb, Department of Urology, Lecture Hall*
9.30 – 11.00	Practicals 4: **"Open biopsy" of the testis** Patient pre-treatment; local anaesthesia; biopsy procedure; tissue transfer into the tissue transfer medium; tissue processing: immersion into the cryomedium; tissue fixation for histology *Dinko Hauptman, Davor Ježek and other medical staff* *Location: Operation Tower, University Hospital Zagreb, Department of Urology, Operational Theatre No.2*
11.15 – 13.00	Practicals 5: **Programmed freezing of testicular tissue** Step-wise freezing of testicular biopsy; manipulation of cryotubes and liquid nitrogen; tissue storage into cryocontainers; testicular tissue bank *Davor Ježek and co-workers* *Location: Andrology Unit, University Hospital Zagreb, Department of Urology*
13.00 – 14.00	**Lunch**
14.00 – 14.45	Lecture 5: **Current EU regulation on tissue banking** Emphasis on semen and testicular tissue banks; EU directives, tissue encoding, tissue transfer within EU *Branka Golubić Ćepulić and co-workers* *Location: University Hospital Zagreb, Department of Urology, Lecture Hall*
14.45 – 15.00	**Coffee break**
15.00 – 17.50	Practicals 6: **Testicular sperm extraction (TESE)** Thawing of the frozen tissue; tissue manipulation and microdissection, spermatozoa visualization, isolation and extraction (for ethical reasons, pre-frozen rat tissue will be used) *Davor Ježek, Patrik Stanić* *Location: Operation Tower, University Hospital Zagreb, Department of Urology, Operational Theatre No.2*
17.50 – 18.00	***Wrap-up of Day 2; Take-home messages; Programme overview of Day 3*** *Davor Ježek*

Thursday, 5 December 2019

Location: Department of Histology and Embryology, University of Zagreb School of Medicine, Šalata 3

8.30 – 9.15	Lecture 6: **Obstructive (OA) and non-obstructive azoospermia (NOA): damage of spermatogenesis** Description of OA and NOA; histology of OA and NOA; current classification/s of the spermatogenesis damage; hypospermatogenesis, maturation arrest, Sertoli cell only syndrome, tubular sclerosis, "mixed atrophy", interstitial fibrosis, histology of Klinefelter syndrome and AZFc microdeletion cases, etc. *Davor Ježek*
9.30 – 11.00	Practicals 7: **OA cases** Real-time microscopy, projection and discussion of slides, "see my slide" *Davor Ježek, Ana Katušić Bojanac, Ana Planinić*
11.00 – 11.15	**Coffee break**
11.15 – 13.00	Practicals 8: **NOA cases** Real-time microscopy, projection and discussion of slides, "see my slide" *Davor Ježek, Ana Katušić Bojanac, Ana Planinić*
13.00 – 14.00	**Lunch**
14.00 – 15.30	Practicals 9: **NOA cases, continued** "Special cases", Klinefelter syndrome, Y chromosome AZFc, partial AZFb microdeletion; real-time microscopy, projection and discussion of slides *Davor Ježek, Ana Katušić Bojanac, Ana Planinić*
15.30 – 15.45	**Coffee break**
15.45 – 16.30	Lecture 7: **Testicular dysgenesis syndrome (TDS) and germ cell neoplasia in situ (GCNIS)** Concept of TDS; origin of GCNIS, modern IHC markers of GCNIS *Niels Jørgensen, Ewa Rajpert-De Meyts*
16.35 – 17.45	Practicals 10: **Spermatogenesis and GCNIS** Real-time microscopy, projection and discussion of slides, demonstration of IHC slides and markers *Ewa Rajpert-De Meyts, Niels Jørgensen*
17.50 – 18.00	**Wrap-up of Day 3; Take-home messages; Programme overview of Day 4** *Ewa Rajpert-De Meyts, Niels Jørgensen, Davor Ježek*

Friday, 6 December 2019

Location: Department of Histology and Embryology, University of Zagreb School of Medicine, Šalata 3

8.30 – 9.15	Lecture 8: **Testicular neoplasms/tumours, essentials** Current classification of testicular tumours, essential morphological properties *Niels Jørgensen, Ewa Rajpert-De Meyts*
9.15 – 9.30	**Coffee break**
9.30 – 10.45	Practicals 11: **Testicular neoplasms/tumours** Main characteristics of seminoma, non-seminoma, spermatocytic seminoma; real-time microscopy, projection and discussion of slides, demonstration of IHC slides and markers *Niels Jørgensen, Ewa Rajpert-De Meyts*
11.00 – 11.45	**Test (multiple choice)** *Davor Ježek, Ana Planinić*
11.45 – 12.00	**Evaluation of the course (questionnaire)**
12.00 – 13.00	**Lunch**
13.00 – 14.00	**Test results, certificates, sum-up discussion**
14.15	**Adjourn**

Literature:

Ježek D. (ed.): Atlas on the human testis: Normal morphology and pathology. Springer Verlag London, 285 pgs., London, 2013 (ISBN 987-1-4471-2763-5; DOI 10.1007/978-1-4471-2763-5)

(each participant will get a free e-version of the book)

Handouts of presentations and/or on-line pdfs.

Faculty:

University of Copenhagen, Royal University Hospital

Prof. Dr. Niels Jørgensen
Prof. Dr. Ewa Rajpert-De Meyts

University of Münster, Centre of Reproductive Medicine and Andrology

Prof. Dr. Stefan Schlatt

University of Zagreb, School of Medicine

Prof. Dr. Davor Ježek
Prof. Dr. Željko Kaštelan
As. Prof. Dr. Branka Golubić Ćepulić
As. Prof. Ana Katušić Bojanac
As. Prof. Nino Sinčić
Dr. Dinko Hauptman
Dr. Ana Planinić
Patrik Stanić, Ph.D.

Facilities (University of Zagreb School of Medicine):

- histology laboratory
- ample microscopy room with 80 binocular microscopes
- Hamamatsu slide scanner ("from organ to cell")
- discussion microscope with LCD projection
- 2 additional LCDs for parallel projections
- collections of slides (normal spermatogenesis, OA and NOA cases, IHC slides), Department of Histology and Embryology,
- collection of slides/digital presentations (testicular dysgenesis syndrome, Ca in situ, testicular tumours collection, IHC slides) Rigshospitalet, Copenhagen
- lecture hall, operational theatre, andrology lab, testicular tissue biobank
- multiple choice answer sheets, optical reader
- space for coffee breaks, water and coffee machines
- dormitory with a total of 10 rooms for postgraduate students and guest professors (double rooms, price per night: approx. 30 EUROS)