



Rigshospitalet



EAA SUMMER SCHOOL:

Testis Histology and Pathology for Clinical Andrologists and Embryologists

5-8 September 2017

University of Zagreb School of Medicine, Šalata 3, Zagreb, Croatia

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

Dear colleagues,

It is our pleasure to welcome you to the *Testis Histology and Pathology for Clinical Andrologists and Embryologists* summer school to be held at the University of Zagreb, School of Medicine, and the recently proclaimed EAA Centre in Europe.

The idea of the summer 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 summer 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, sperm harvesting from testicular biopsy;
- 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 and our colleagues from EAA Centre Copenhagen we wish you a successful summer school and enjoyable stay in Zagreb, the oldest centre of academic and research excellence in this part of Europe. We hope you will appreciate Zagreb's multicultural atmosphere and picturesque scenery.



Davor Ježek, MD, PhD



Niels Jørgensen, MD, PhD

COURSE PROGRAMME

Tuesday, 5 September, 2017

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

8.30 – 8.40	Introduction: Programme Overview <i>Davor Ježek</i>
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 <i>Davor Ježek</i>
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”) <i>Davor Ježek, Viviana Kozina and laboratory technicians</i>
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” <i>Davor Ježek, Viviana Kozina and laboratory technicians</i>
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) <i>Davor Ježek</i>
14.45 – 15.00	Coffee break
15.00 – 17.50	Practicals 3: Normal histology of the testis (real time microscopy, “see my slide”); parallel projection of slides and discussion) <i>Davor Ježek, Viviana Kozina</i>
17.50 – 18.00	Wrap-up of Day 1; Take home messages; Programme overview of Day 2 <i>Davor Ježek</i>

Wednesday, 6 September 2017

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

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| 8.30 – 9.15 | <p>Lecture 3: From Testicular Biopsy to Human Embryo
 <i>Davor Ježek, Željko Kaštelan</i>
 <i>Location: University Hospital Zagreb, Department of Urology, Lecture Hall</i></p> |
| 9.30 – 11.00 | <p>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)
 <i>Dinko Hauptman, Davor Ježek and other medical staff</i>
 <i>Location: Operation Tower, University Hospital Zagreb, Department of Urology, Operational Theatre No.2</i></p> |
| 11.15 – 13.00 | <p>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)
 <i>Davor Ježek, Viviana Kozina</i>
 <i>Location: Andrology Unit, University Hospital Zagreb, Department of Urology</i></p> |
| 13.00 – 14.00 | Lunch |
| 14.00 – 14.45 | <p>Lecture 4: Current EU regulation on tissue banking (emphasis on semen and testicular tissue banks; EU directives, tissue encoding, tissue transfer within EU)
 <i>Branka Golubić Čepulić and co-workers</i>
 <i>Location: University Hospital Zagreb, Department of Urology, Lecture Hall</i></p> |
| 14.45 – 15.00 | Coffee break |
| 15.00 – 17.50 | <p>Practicals 6: Testicular sperm extraction (TESE) (thawing of the frozen tissue; tissue manipulation and microdissectioning, spermatozoa visualization, isolation and extraction) (for ethical reasons, pre-frozen rat or swine tissue will be used)
 <i>Davor Ježek, Viviana Kozina</i>
 <i>Location: Operation Tower, University Hospital Zagreb, Department of Urology, Operational Theatre No.2</i></p> |
| 17.50 – 18.00 | <p>Wrap-up of Day 2; Take home messages; Programme overview of Day 3
 <i>Davor Ježek</i></p> |

Thursday, 7 September 2017

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

- 8.30 – 9.15 **Lecture 5: 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, Viviana Kozina
- 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, Viviana Kozina
- 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, Viviana Kozina
- 15.30 – 15.45 **Coffee break**
- 15.45 – 16.30 **Lecture 6: Testicular dysgenesis syndrome (TDS) and germ cell neoplasia in situ (GCNIS) (concept of TDS; origin of GCNIS, modern IHC markers of GCNIS)**
Niels Erik Skakkebaek, Ewa Rajpert-De Meyts, Niels Jørgensen
- 16.35 – 17.45 **Practicals 10: Spermatogenesis and GCNIS (real time microscopy, projection and discussion of slides, demonstration of IHC slides and markers)**
Niels Erik Skakkebaek, Ewa Rajpert-De Meyts, Niels Jørgensen
- 17.50 – 18.00 **Wrap-up of Day 3; Take home messages; Programme overview of Day 4**
Niels Erik Skakkebaek, Ewa Rajpert-De Meyts, Niels Jørgensen, Davor Ježek

Friday, 8 September 2017

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

- 8.30 – 9.15 **Lecture 7: Testicular neoplasms/tumours, essentials (current classification of testicular tumours, essential morphological properties)**
Niels Erik Skakkebaek, Ewa Rajpert-De Meyts, Niels Jørgensen
- 9.15 – 10.30 **Coffee break**
- 10.30 – 11.45 **Practicals 11: Testicular neoplasms/tumours (main characteristics of seminoma, non-seminoma, spermatocytic tumour; real time microscopy, projection and discussion of slides, demonstration of IHC slides and markers)**
Niels Erik Skakkebaek, Ewa Rajpert-De Meyts, Niels Jørgensen
- 12.00 – 12.45 **Test (multiple choice)**
Davor Ježek, Viviana Kozina
- 12.45 – 13.00 **Evaluation of the course (questionnaire)**
- 13.00 – 14.00 **Lunch**
- 14.00 – 15.00 **Test results, certificates, sum-up discussion**
- 15.15 **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 Zagreb, School of Medicine**

Prof. Dr. Davor Ježek

Prof. Dr. Željko Kaštelan

As. Prof. Dr. Branka Golubić Čepulić

Dr. Viviana Kozina

Dr. Dinko Hauptman

University of Copenhagen, Royal University Hospital

Prof. Dr. Niels Erik Skakkebæk

Prof. Dr. Ewa Rajpert-De Meyts

Prof. Dr. Niels Jørgensen

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)