Medical University of Graz

BASIC MOLECULAR BIOLOGY FOR PATHOLOGISTS

GRAZ, MARCH 31 – APRIL 4, 2014

European Society of Pathology

ESCOP – European School of Pathology
Molecular Pathology Courses

OECI
ORGANISATION OF EUROPEAN CANCER INSTITUTES
EUROPEAN ECONOMIC INTEREST GROUPING

MONDAY, MARCH 31, 2014

08.00 – 08.15 REGISTRATION

08.15 – 08.30 WELCOME AND INTRODUCTION TO THE COURSE

08.30 – 09.15 **DIAGNOSTIC MOLECULAR PATHOLOGY - AN OVERVIEW AND AN OUTLOOK** (M. Dietel)

STRUCTURE AND FUNCTION OF THE HUMAN GENOME

09.15 – 09.45 Structure and organization of the genome. DNA replication and translation (D. Kratky)
09.45 – 10.15 Regulations of genome function: transcription regulation and miRNA. Translation and pre/post-translational modifications (D. Kratky)
10.15 – 10.30 Discussion

10.30 – 11.00 Coffee

11.00 – 11.30 Genome damage and repair mechanisms that stabilize the genome (S. Jahn)
11.30 – 12.15 Epigenetics (E. Heitzer)
12.15 – 12.30 Discussion

12.30 – 13.30 Lunch

AN INTRODUCTION TO GENOME AND GENE ABNORMALITIES AND THEIR RELATION TO DISEASE

13.30 – 14.15 Germ line aberrations: hereditary diseases (J. Geigl)
14.15 – 15.00 Somatic aberrations: acquired anomalies (G. Hoefler)
15.00 – 15.30 Discussion

15.30 – 16.00 Coffee

16.00 – 17.00 Pre-Analytics & Biobanking (K. Zatloukal)
17.00 – 17.45 DNA & RNA isolation (S. Bonin)
17.45 – 18.00 Discussion

TUESDAY, APRIL 1, 2014

HOW DO WE STUDY GENES: THE TOOLBOX OF THE MOLECULAR BIOLOGIST I

08.30 – 09.15 Principles of PCR: end-point, real time, digital, quantitative, mutation detection (M. Speel)
09.15 – 10.00 NGS comparison with Sanger and pyrosequencing (K. Kashofer)
10.00 – 10.30 Discussion

10.30 – 11.00 Coffee

HOW DO WE STUDY GENES: THE TOOLBOX OF THE MOLECULAR BIOLOGIST II

11.00 – 11.45 Cell and tissue based techniques: ISH, FISH, CISH (M. Speel)
11.45 – 12.30 Gene expression: mRNA and miRNA (S. Bonin)
12.30 – 13.00 Discussion

13:00 – 14:00 Lunch

14.00 – 14.45 **TISSUE BASED PROTEOMICS: INTRODUCTION TO PROTEOMICS IN FIXED AND PARAFFIN EMBEDDED TISSUES**

14.00 – 14.45 2D electrophoresis and reverse phase protein arrays (K. Becker)
14.45 – 15.30 MS based proteomics (R. Birner-Grünberger)
15.30 – 16.00 Discussion

16.00 – 16.30 Coffee

THE MOLECULAR PATHOLOGY LAB

16.30 – 17.30 How to set up a molecular pathology lab. Quality control in molecular pathology lab (G. Hoefler)
17.30 – 18.30 Discussion & Lab visit

WEDNESDAY, APRIL 2, 2014

MOLECULAR PATHOLOGY OF CANCER: TRANSLATING HALLMARKS INTO DIAGNOSES

08.30 – 09.15 Hallmarks of cancer (K. Zatloukal)
09.15 – 10.00 Diagnostic prognostic and predictive use of hallmark based parameters (F. Bosman)
10.00 – 10.30 Discussion

10.30 – 11.00 Coffee

DIAGNOSTIC MOLECULAR TESTS IN THE PRACTICE OF PATHOLOGY

11.00 – 11.45 Lung cancer KRAS and EGFR (E. Thunnissen)
11.45 – 12.30 Other markers in lung cancer (H. Popper)
12.30 – 13.00 Discussion

13.00 – 14.30 Lunch & Visit Biobank (optional)

14.30 – 15.30 Round table

17.00 Social event

THURSDAY, APRIL 3, 2014

DIAGNOSTIC MOLECULAR TESTS IN THE PRACTICE OF PATHOLOGY

08.30 – 09.15 Identity testing (W. Dinjens)
09.15 – 10.00 Predictive biomarkers and drug resistance mechanisms (G. Stanta)
10.00 – 10.30 Discussion

10.30 – 11.00 Coffee

11.00 – 11.45 Hereditary colon cancer (A. Jung)
11.45 – 12.30 Predictive markers in colon cancer (W. Dinjens)
12.30 – 13.00 Discussion

13.00 – 14.00 Lunch

DIAGNOSTIC MOLECULAR TESTS IN THE PRACTICE OF PATHOLOGY

14.00 – 14.45 Molecular markers in pediatrics (B .Gürtl-Lackner)
14.45 – 15.30 Molecular prognostic and predictive markers for hepatocellular carcinoma (C. Lackner)
15.30 – 16.00 Discussion

16.00 – 16.30 Coffee

16.30 – 17.15 Predictive markers in soft tissue tumors (B. Liegl-Atzwanger)
17.15 – 18.00 Haematological malignancies – standard molecular tests and novel diagnostic developments (F. Fendt)
18.00 – 18.30 Discussion

FRIDAY, APRIL 4, 2014

DIAGNOSTIC MOLECULAR TESTS IN THE PRACTICE OF PATHOLOGY

08.30 – 09.00 Diagnostic approaches in hereditary breast cancer (C. Marchio)
09.00 – 09.45 Breast cancer (C. Marchio)
09.45 – 10.15 Discussion

10.15 – 10.45 Coffee

10.45 – 11.30 Circulating tumor cells and DNA (M. Speicher)
11.30 – 12.30 Ethical & legal requirements for molecular pathologic research and diagnostics (K. Zatloukal)
12.30 – 13.00 Discussion

13.00 – 14.00 Lunch

DERMATOPATHOLOGY AND INFECTIOUS DISEASES

14.00 – 14.45 Predictive markers in melanoma (S. Regauer)
14.45 – 15.30 Diagnostic use of molecular techniques for viral and bacterial disease (G. Gorkiewicz)
15.30 – 16.15 HPV biology and testing (P. Regitnig)

16.15 – 16.45 Coffee

16.45 – 17.30 Self-evaluation test
17.30 – 18.00 Feedback, Concluding remarks