Molecular and Clinical Aspects of Cancer

PhD Course

MOLECULAR AND CLINICAL ASPECTS OF CANCER

Invitation

The Faculty of Health Sciences at the Arctic University of Norway, University of Tromsø, would like to invite you to participate in a comprehensive course on molecular and clinical aspects of cancer. The study program focuses on the underlying mechanisms for cancer development but also serves as a more general introduction to basic disease mechanisms. The complete program is composed of two separate courses that may be followed separately.

We hope that you or any of your students, colleagues or staff will find interest in this multidisciplinary study program and participate in parts or all of it. We very much appreciate your help in forwarding this invitation to others that might be interested.

Course Aims

Information

Provide cutting edge, integrated information concerning molecular and clinical aspects of cancer to scientists, clinicians and students of science and medicine

Training

Provide training in analytical and critical approaches to cancer-related research and literature

Sharing

Attract and bring together participants from different fields and institutions

Topics We Cover

- Molecular Genetics of Cancer
- Signal Transduction and Cancer
- Tumor Biology
- Chromatin Organization and Epigenetic Mechanisms of Cancer
- Infection, Inflammation and Cancer
- DNA Repair
- Cancer Stem Cells
- Molecular Epidemiology of Cancer
- Novel Approaches in Molecular Medicine and Immunotherapy of Cancer

MOLECULAR AND CLINICAL ASPECTS OF CANCER

BIO-8302 (Autumn)

MOLECULAR BASIS FOR CANCER DEVELOPMENT

Comprises 3 Complementary Modules

Module I

Provides a broad overview of the molecular genetics of cancer, and discusses the basic molecular mechanisms leading to development of cancer. The main issues are mechanisms for cell-cycle regulation, proliferation, transformation, cell invasion and cell survival. How dysregulation of any of these processes may contribute to cancer development is discussed. Therapeutic strategies that arise from an understanding of these mechanisms are also discussed.

Module II

The topic is signal transduction and cancer. Here the various intracellular signaling pathways that are found to be dysregulated in cancer are discussed. Among these are the pathways that regulate cell proliferation, cell survival, metabolism, transformation and differentiation.

Module III

Covers a broad overview of tumor biology. Here the main mechanisms that regulate metastasis, angiogenesis, and apoptosis are described. These processes are fundamental for embryogenesis, but are also central in the establishment and maintenance of cancer cells. Students are introduced to the pathobiology of cancers in the context of the mechanisms that are discussed.

The course includes:

- ✓ 6 days of lectures
- ✓ 2 days of student seminars
- ✓ 2 days of seminar preparations
- ✓ 6 weeks to complete an essay

MOLECULAR AND CLINICAL ASPECTS OF CANCER

BIO-8303 (Spring)

SPECIFIC MECHANISMS OF CANCER AND STRATEGIES FOR THERAPEUTIC INTERVENTION

Module I

Covers the topics of DNA repair, Transcriptional regulation, Chromatin and Epigenetics and the impact of these processes on the fidelity of maintenance of proliferation, survival and differentiation of the cell. How dysregulation of any these processes may contribute to cancer development is discussed.

Module II

Topics are infectious agents and their involvement in different cancer types, chronic inflammation and cancer, and the role of cancer stem cells. The infectious agents focused on are viruses, and how they may disturb the normal regulation of eukaryotic cells. Chronic inflammation is linked to cancer, and the molecular mechanisms involved will be presented. Finally, the presence and roles of cancer stem cells in both solid and hematopoietic tissues will be discussed.

Module III

Covers how cancer treatments can benefit from targeted therapy, cancer -omics and cancer epidemiology. Targeted therapeutic drug regimens and immunotherapeutic strategies will be focused on. The omics and epidemiology sections highlight the impact of genetic and environmental factors in cancer development.

The course includes:

- ✓ 5 days of lectures
- ✓ 3 days of student seminars
- ✓ 2 days of seminar preparations

MOLECULAR AND CLINICAL ASPECTS OF CANCER

Lecturers

The course is taught by an international staff of lecturers renown in their respective fields of research.

BIO-8302 2016 (Autumn)

Eric J. Stanbridge, PhD, University of California at Irvine
Channing J. Der, PhD, University of North Carolina at Chapel Hill
Adrienne D. Cox, PhD, University of North Carolina at Chapel Hill
Geir Bjørkøy, PhD, Norwegian University of Science and Technology
Stephen M. Baird, M.D., University of California at San Diego
Geoffrey Baird, M.D. PhD, University of Washington Medicine
Tuomas Tammela, M.D. PhD, Massachusetts Institute of Technology
Terje Johansen, PhD, University of Tromsø

BIO-8303 2017 (Spring)

Judith Stärk, PhD, University of Oslo
Arne Klungland, PhD, Oslo University Hospital
Neil Perkins, PhD, University of Newcastle
Ugo Moens, PhD, University of Tromsø
Nina Eissler, PhD, CRT Discovery Laboratories, London/Cambridge
Baldur Sveinbjørnsson, PhD, University of Tromsø
Karina Standahl Olsen, PhD, University of Tromsø
Rein Aasland, PhD, University of Bergen
Kirsten Grønbæk, M.D., University of Kobenhagen

Lecture Schedule

BIO-8302 (Autumn)

Molecular and Clinical Aspects of Cancer Development

Including cancer genetics, signal transduction and tumor biology

6 days lecture

2 days of student seminars
2 days of seminar preparations

6 weeks to complete an essay

BIO-8303 (Spring)

Cancer Prevention, Diagnosis and Treatment

Including infectious agents and cancer, DNA damage and repair, chromatin structure, transcription, epigenetics, stem cells, cancer epidemiology and targeted therapy

5 days lecture

3 days of student seminars
2 days of seminar preparations

MOLECULAR AND CLINICAL ASPECTS OF CANCER

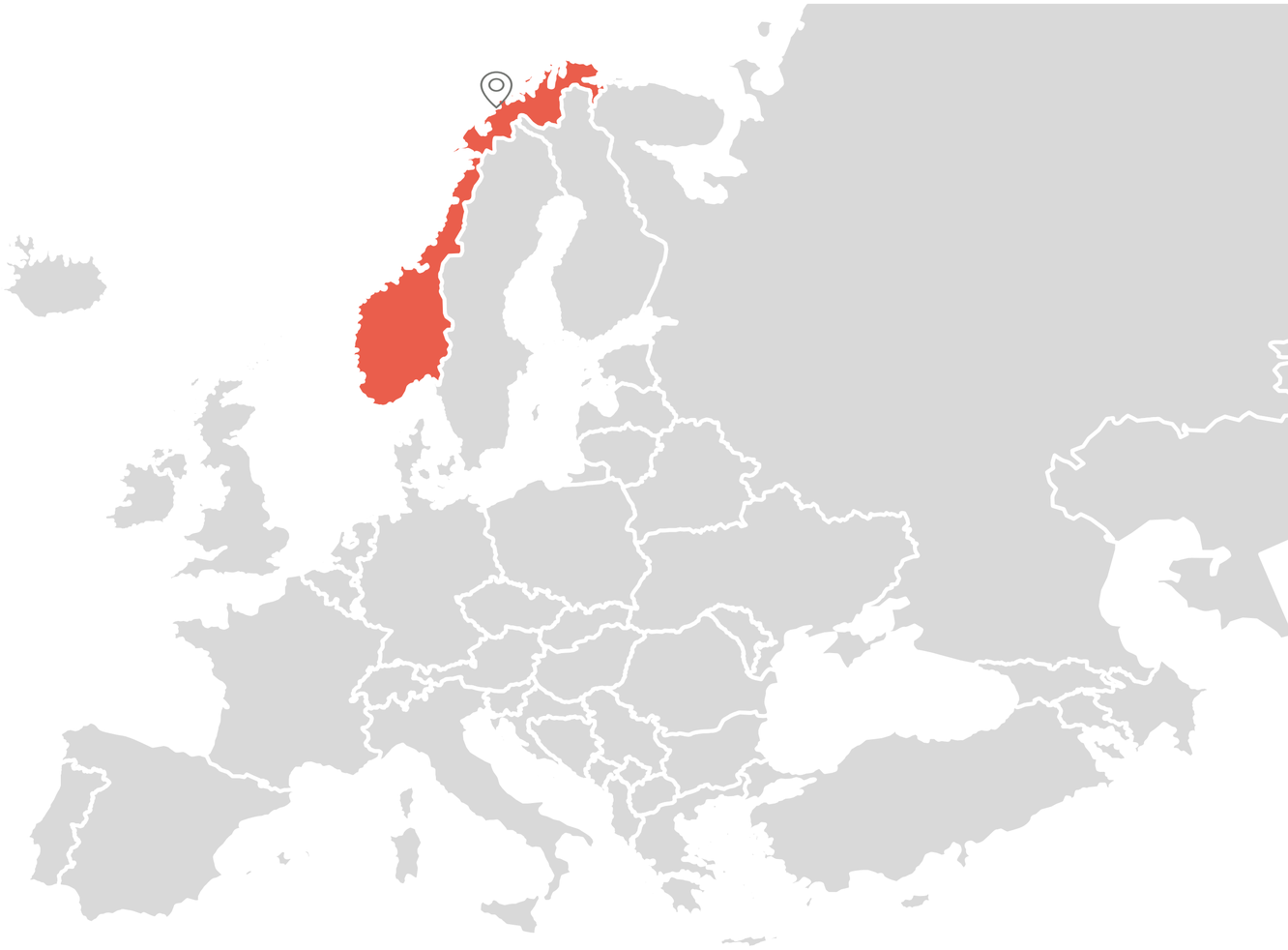
Application Deadline

December 1st 2016

There is no course fee.

For the cost of 4.000 NOK each external participant will be offered housing in double room at a hotel in the center of Tromsø. Please contact us as soon as possible for reservation of accommodation.

For more information, please visit www.uit.no/mcac



MOLECULAR AND CLINICAL ASPECTS OF CANCER

Need more info?

Application Process

forskningstjenester@helsefak.uit.no

Course Information

eva.sjottem@uit.no

Accommodation

zvonko.mitrovic@uit.no

www.uit.no/mcac