

## ESMO Fellowship – Gustave Roussy Host Institute

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### Fellowship Opportunities

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Translational Research Fellowships  
Clinical Research Fellowships

#### General description

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Gustave Roussy is the premier European Cancer Centre uniting patient care, research, and teaching that places innovation at the heart of a human, scientific, and technological revolution in the fight against cancer.

The centre deploys cutting-edge research to advance scientific discovery. Doctors are making use of more personalized and less invasive medicine, and are administering top-notch treatments in the safest possible conditions. Gustave Roussy is investing in ultramodern technologies and developing innovative services that promote the well-being of patients and support open dialogue for patients and their families to assist during difficult times.

#### Expertise

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A pioneer in the multidisciplinary approach for the treatment of cancer, Gustave Roussy is dedicated to rapidly translating research advances to clinical application for the benefit of patients.

The institute specializes in the management of rare cancers and complex tumours and unites expertise in medical oncology, chemotherapy, radiotherapy, surgery, interventional radiology and reconstructive surgery. Due to its commitment to teaching, the institute is at the forefront of medicine, capable of adapting to the revolutionary changes impacting cancer treatment.

#### Facilities

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**Treatment:** The 355-bed hospital had 228,000 consultations, over 11,000 new patient consultations, (22% of whom came from abroad, 750 patients enrolled in early-phase clinical trials, and 3300 patients enrolled in a clinical trial in 2014. Overall, 369 clinical trials are underway at the Cancer Centre.

**Research:** Over 300 researchers, comprising 13 departments and 36 research teams, work under the oversight of the Scientific Advisory Board, the Therapeutic Trials Commission and the Clinical Research Committee.

**Teaching:** Over 40,000 hours of instruction are given annually, with 2300 students and 500 professionals receiving training. Created in 2012 in collaboration with the University of Paris, the School of Oncology has 26 teaching professors and 214 physicians teaching its courses. Twenty-six post-graduate courses (*diplômes universitaires*) are offered by Gustave Roussy.

#### Training Experience Required

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Gustav Roussy is seeking candidates for following departments and services:

- 1- Paediatric
- 2- Early trials
- 3- Genetics
- 4- Outpatient treatment
- 5- Thyroid surgery
- 6- Thoracic Oncology
- 7- Biostatistics
- 8- Breast Cancer
- 9- Gynecology
- 10- Dermatology

### **Paediatric**

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#### General Description

The Department of Pediatric and Adolescent Oncology, headed by Dominique Valteau-Couanet, together with the Pediatric Malignancies Multidisciplinary Committee, headed by Jacques Grill, is dedicated to the treatment of children and adolescents with solid tumors, including brain tumours and lymphomas, and is the leading and one of the largest pediatric oncology departments in Europe.

Cross-tumor interdisciplinary clinical and translational research programs include

- New drugs and precision cancer medicine, led by Birgit Geoerger
- Immunotherapy, led by Véronique Minard
- Survivorship and long-term follow up, led by Brice Fresneau
- Genomics and cancer predisposition, led by Laurence Brugières & Jacques Grill

#### Facilities

To help improve comprehensive, innovative care centred on the needs of young patients, the department underwent extensive architectural restructuring. This was partly financed by the generosity of the public and sponsors and the new premises were opened in December 2014.

#### Project

Specialized programme: The applicant will be involved in the design and the conduct of Phase I and early Phase II clinical trials, as well as a new program for biology-driven personalized medicine. Fellows will be trained via clinical rotations and by following a unique mentoring program to pursue translational research for new drug development.

Fellows will work in an integrated program comprised of

- A clinical fellowship and care of patients participating in the early drug development program
- Translational and clinical research

Clinical trials are developed within the European network consortium, Innovative Therapies for Children with Cancer (ITCC).

The fellow will design and develop a research project together with their mentor. Research projects are tailored to meet the needs of individual fellows depending on their interests, previous training, and experience.

Target identification and Preclinical Drug Evaluation programme: The applicant will be involved in the discovery of new paediatric specific therapeutic targets focusing on brain tumours and the preclinical evaluation of new anticancer drugs in relevant preclinical models with the aim of translating discoveries into diagnostic improvement for patients, stratification of therapeutic treatments for better personalized medicine, and development and evaluation of early clinical trials with appropriate biomarkers and pharmacodynamic read-outs.

Candidate profile:

MD & PhD

## Early Trials

General Description

DITEP is a dedicated early drug development department, with more than 10 clinical trials underway on hematological malignancies. This department offers junior hematologists an opportunity to receive intense training in Phase I clinical trials.

Expertise

The DITEP has more than 50 Phase I clinical trials underway, with 11 beds as well as outpatient treatment facilities. More than 791 patients were treated in 2014.

Facilities

The DITEP, led by Jean-Charles Soria, now has more than 60 active Phase I trials that are enrolling patients. Around 450 patients benefitted from innovative treatment via this department in 2014.

Project: work on haematology and EDD (prognostic factors, toxicity, etc.)

Candidate profile:

MDs

## Genetics Department

General Description

The Genetics Dept. seeks to identify patients at high risk of developing cancers, working in close contact with oncogeneticists, epidemiologists, statisticians, and the Bioinformatics Core Facility.

Expertise

The department has extensive expertise in targeted and now full exome sequencing, including *in silico* analysis of genetic variants that is moving towards *in silico* pathway analysis.

Facilities

A comprehensive molecular genetics facility includes pre- and post-PCR areas, Q-PCR and PCR instruments and sequencers (Sanger and soon, Miseq).

Project: identification of new cancer susceptibility genes by exome sequencing

Candidate profiles:

MD & PhD

**Ambulatory care – Day hospital**

General description

Consultations, emergency room, coordination for outpatient care

Expertise

Symptom control, emergency care for cancer patients, coordination of care

Project

Care for acute symptoms in cancer patients: epidemiology and treatment;  
Medico-economic research in coordination with patient care

Clinical implications of research on body composition applied to oncology: prognosis, chemotherapy toxicity, impact on fatigue

Candidate profile:

MD

**Thyroid surgery unit**

General description

The thyroid surgery unit in the Department of Head and Neck Oncology has three full-time surgeons working with cases of head and neck squamous cell carcinoma.

Expertise

Surgery for thyroid cancer, particularly surgical treatment, extensive neck dissection, invasive cancer and radio-guided surgery

Facilities

OR time 3 to 4 days per week, tumour board once per week, thyroid diagnostic clinic once per week

Project

Sentinel node biopsy for thyroid cancer  
Multicenter national clinical trials on prophylactic neck dissection  
Radio-guided surgery with 18-FDG-PET

Candidate profile:

MD

**Thoracic Oncology**

General description

The Institute of Thoracic Oncology, part of Gustave Roussy and Marie Lannelongue Hospital, is an integrated institute for diagnosis and treatment of thoracic malignancies including lung carcinoma, mediastinal and pleural tumors, chest-wall tumors and thoracic sarcoma.

### Expertise

The institute combines two internationally recognized hospitals specialized in cancer and thoracic surgery. The physicians working in this institute cover all aspects of thoracic malignancies.

### Facilities

The Institute offers established procedures for prevention, diagnosis (MRI, CT scan, PET scan, Bronchoscopy, EBUS, EUS, pathology, molecular platform, etc.) and treatment (surgery, radiotherapy, chemotherapy, and immunotherapy) including translational research programs.

### Project

Any program regarding the treatment strategy of thoracic malignancies (including surgery, radiotherapy medical oncology)

### Candidate profile:

MD & PhD

## **Biostatistics department**

### General description

The biostatistics department, headed by E. Benhamou, has 50 employees, including 26 statisticians (11 senior researchers, 2 PhD students), 12 data managers, and 5 economists (2 senior). An INSERM research team, Methodology and Clinical Epidemiology in Molecular Oncology, comprised of statisticians and economists and headed by S. Michiels joined the department in January 2015.

### Expertise

Statistical methods related to clinical trials (Phase I to III), economic evaluation, individual patient meta-analysis, epidemiology and translational research focusing on genomics

The meta-analysis team, headed by J.P. Pignon, is specialized in individual patient data meta-analysis, in particular lung (Mauguen JCO 2012 and Lancet Oncol 2013; Friboulet NEJM 2013) and head & neck cancer (Pignon Rad oncol 2009, Blanchard JCO 2013, Blanchard Lancet Oncol 2015).

### Facilities

A new 460 m<sup>2</sup> biostatistics building hosts research teams in epidemiology, translational research, and bioinformatics. A medical computer science department supports the biostatistics department.

### Project

Summary or individual patient data meta-analyses of randomized trials in oncology: in particular, lung, hepatic & GI tract and head & neck cancers

Pooled analysis of randomized trials for evaluation of prognostic and predictive value of tumour markers

### Candidate profile:

MD & PhD

## **Breast Cancer**

### General description

The Breast Cancer Group, Gustave Roussy University Hospital, is dedicated to multidisciplinary care of all types of breast lesions and particularly focused on breast cancer at any stage, together with high-level clinical and translational research.

### Expertise

**Team in charge:** Dr. Delalogue, Head of Breast Cancer Group; Prof. Fabrice André, Head of Inserm U981 biomarker lab; Dr. Monica Arnedos, Senior Medical Oncologist in charge of early drug development in the Breast Group, Dr. Mahasti Saghatchian, Senior Medical Oncologist

Among the various specializations within the breast group, we underscore the following:

- Deep involvement of multidisciplinary care in diagnosis and decision making at any stages of the disease
- Major involvement of translational research and biology in diagnosis and decision making in all stages and in daily practice
- Unique, multidisciplinary organisation makes the department one of the largest one-stop-shops for breast lesions in Europe
- Major role for clinical cancer research in the dept. which has access to new drugs Organisation: cancer research, outpatient hospital, pharmacy, and all structures dedicated to clinical research all work together
- Unique translational research lab dedicated to breast cancer personalized medicine dedicated to
- Unique historical tumour bank reaching back 25 years

### Project

A junior oncologist would spend a year within the breast-dedicated team in order to conduct a specialized clinical research on personalized medicine in breast cancer (the project could focus either on localized or advanced cancers, or could even study prevention).

The following projects would typically be one-year clinical research projects in the field of personalized medicine: biomarker-based clinical trials, short term, local, feasibility trials (either localized, advanced or even in a preventive context), in relation with larger clinical trials or evaluations (ex. CTC, ctDNA, preoperative sequencing to match patients to dedicated preoperative trials, etc.)

### Candidate profile:

Graduate MD

## **Gynecology / Oncology Unit**

### General description

The Gynecology/Oncology unit is a multidisciplinary team composed of medical oncologists, surgeons, radiotherapists, and radiologists as well as dedicated pathologists with specific expertise in gynaecologic malignancies. Around 500 new patients are seen each year with ovarian, endometrial or cervical cancers as well as uterine sarcomas and trophoblastic diseases.

### Expertise

- 1) Rare gynaecologic tumours: The department is a national referral centre for rare tumours such as germ cell or sex cord-stromal tumours of the ovary, clear cell or small cell ovarian cancer, persistent gestational trophoblastic neoplasia, uterine sarcomas etc. For most of these pathologies, clinical trial data is scarce and optimal management strategies remain poorly defined. A number of clinical trials have been conducted by Gustave Roussy's Gynecology Department, which have helped to define the standard of care for these rare tumours (APE in high risk gestational trophoblastic neoplasia, ASCO oral 2012; Caelyx and trabectedin in

uterine leiomyosarcoma, ASCO oral 2013; PAVEP and high dose chemotherapy in small cell cancer of the ovary, Pautier et al Ann Onc 2007).

- 2) Translational research
  - a) Molecular profiling of sequential tumour samples

All surgeries are performed on-site with established procedures for the collection of quality tumour and healthy tissue samples (frozen and FFPE) throughout the course of disease, including at diagnostic laparoscopy, during post-neoadjuvant chemotherapy surgery or surgery for residual disease post-radiotherapy, and during resection of isolated metastases. In addition, repeat biopsies at time of disease progression are routinely performed. This protocol provides the backbone for ongoing translational research projects investigating the mechanisms of resistance to treatment and novel targets in gynaecologic tumours.

- b) *Ex vivo* ascitic cell primary culture:

We have optimized protocols for primary culture of malignant ascitic cells from patients. In addition to potentially providing fresh tumour samples from patients throughout the course of disease, this technique allows testing (such as mechanistic and pre-clinical target validation studies) on live cells which may provide a more representative preclinical model than commercially available cell lines. In patients exhibiting chemoresistance, this technique provides an opportunity to test strategies for overcoming chemoresistance with novel therapies *in vitro*.

### Facilities

The institute offers access to high-throughput profiling technologies such as CGH, RNASeq, next generation sequencing (Illumina, Ion Torrent), as well as IHC and FISH for genomic and proteomic profiling of clinical samples. In addition, the department of gynecology also benefits from a dedicated space in the institute's new translational laboratories to conduct mechanistic preclinical studies that are crucial to validate candidate predictive markers or therapeutic targets identified in clinical samples.

### Project

The candidate could either focus on one aspect of a large project, or initiate a smaller, independent project. All projects would focus on translational research rather than clinical trials in order to offer the candidate the opportunity to take a project from conception to data analysis and publication during their fellowship. Studies may be conducted on prospectively or retrospectively collected samples and mechanistic preclinical experiments may be proposed in parallel depending on the candidate's interests and prior experience.

Topics include but are not limited to:

- Genomic instability and DNA repair in chemotherapy responsiveness in ovarian and endometrial cancers
- Characterisation of chemotherapy resistant clones
- Definition of molecular profile of a rare gynaecologic pathology
- Novel actionable targets in gynaecologic tumours, with a focus on eradicating minimal residual disease/lethal clones.

### Candidate profile:

MD and PhD, however MDs must have completed their medical degree

<b>Dermatology Service</b>
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### General description

Dermatology service with a team of MDs, PhDs, Clinical research assistants

Expertise

Melanoma: targeted therapies and immunotherapies/carcinoma

Facilities

Clinics (outpatient)

Lab with PhD students, postdocs, technicians

Research on resistance to targeted therapies and immunotherapy

Project

Translational research project to study biomarkers of resistance/sensitivity to new agents in melanoma

Candidate profile:

Graduate MD & PhD