

**ESP Advanced Training Centre for Thyroid and Parathyroid Tumours,
Lausanne, Switzerland**

a) Name of the Centre

Institute of Pathology, Lausanne University Hospital (Centre Hospitalier Universitaire Vaudois), Lausanne, Switzerland.

http://www.chuv.ch/pathologie/ipa_home/ipa-pathologie-clinique.htm

b) Chair of the Department

Prof. Laurence de Leval

c) Head of the training program

Prof. Massimo Bongiovanni

d) Details about specific areas in which training can be offered

Thyroid cancer is by far the most common type of endocrine malignancy and its incidence has been steadily rising over the past three decades in many countries around the world. As the reported prevalence of thyroid nodules incidentally detected is as high as 67% in the general population, fine needle aspiration cytology has come to play a pivotal role in the initial evaluation of thyroid lesions; in addition, application of molecular biology techniques to both cytological and histological specimens can help in appropriately guiding surgical and therapeutical management of patients.

The Department of Clinical Pathology of the Lausanne University Hospital is a tertiary referral centre for thyroid and parathyroid pathology, with approximately 500 cytological specimens, 200 histological cases and 30 intraoperative extemporaneous examinations of thyroid lesions, as well as 50 histological cases and 40 intraoperative extemporaneous examinations of parathyroid lesions per year. Thyroid fine-needle aspiration (FNA) with rapid on-site evaluation (ROSE) of the aspirated materials are performed under ultrasound guidance in collaboration with the Endocrinology Service. FNA is also performed on suspicious head and neck lymph nodes or possible parathyroid cysts along with measurement of thyroglobulin

(TG), calcitonin (CT) or parathyroid hormone (PTH) in the aspirate. In case of indeterminate FNA results of thyroid nodules, the Centre offers the possibility of performing either a panel of four molecular biology tests (*BRAF* and *RAS* mutation analysis, *RET/PTC* and *PAX8/PPAR γ* rearrangement evaluation by fluorescence *in situ* hybridisation) or a next-generation sequencing panel of 52 genes to better assess malignancy risk of cytological results. Surgery is performed at the Hospital by endocrine surgeons and ORL specialists and cases are discussed in a multidisciplinary tumor board.

Prof. Bongiovanni is an internationally recognised expert in the field of thyroid pathology, with training in Italy, Switzerland, Austria and the United States. He is one of the cytopathologists who contributed to the definition of *The Bethesda System for Reporting Thyroid Cytopathology* (TBSRTC) and is member of numerous societies, including the *International Academy of Cytology* (IAC), the *European Society of Pathology* (ESP), the *European Neuroendocrine Tumour Society* (ENETS), the Swiss Registry for Neuroendocrine Tumors (SwissNET) and the *Swiss Society of Pathology* (SGPath). He is actually the vice-president of the *Swiss Society of Cytopathology* (SSC).

Advanced training can be offered in the following areas:

- Thyroid and parathyroid cytopathology (practice of FNA with ROSE and TG/CT/PTH measurement)
- Thyroid macroscopy and histopathology
- Thyroid intraoperative frozen-section evaluation (thyroid and parathyroid)
- Immunohistochemistry in differential diagnosis of thyroid lesions
- Molecular pathology (Next-Generation Sequencing, evaluation of *RAS* and *BRAF* mutational status, fluorescence *in situ* hybridisation for *PAX8/PPAR γ* and *RET/PTC* rearrangements)
- Participation to weekly multidisciplinary tumour board meetings with other internationally recognized experts in the field of thyroid and parathyroid pathology (endocrinologists, endocrine surgeons, otorhinolaryngologists, oncologists and nuclear medicine specialists).

e) Positions offered for each year and expected duration of the training

The center offers 1 position each year, for a duration of 3-6 months. The visit can be extended to up to 12 months in case the fellow is involved in a translational research project. Please note that additional money can be requested to the visitor in order to satisfy Governmental rules for employing foreigners people; this additional money can be offered by our institution in case of needs. Engagement in research is strongly encouraged; several ongoing projects of the endocrine pathology research team are funded from institutional, national and international sources.

f) Specific period of the year when the visit may be realized

There is no time restriction; the exact dates can be defined by contacting the head of the training program.

g) Contact address for requesting details by the applicant

Prof. Massimo Bongiovanni
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h) We further declare that we meet the requirements for hosting fellows in our Centre:

- Fellows will not be charged for the training.
- Low cost accommodation can be found through the housing service of the hospital (http://www.chuv.ch/chuv_home/chuv-emploi-travailler/chuv-emploi-travailler-logement.htm).
- Fellows will receive assistance in getting visa, insurance, or other documents required.
- After completion of the training period, the trainee will receive a detailed certificate describing his/her work.
- A letter of invitation for the applicant can be issued, if required.

i) Short list of references

- **Bongiovanni M**, Trimboli P, Rossi ED, Fadda G, Nobile A, Giovanella L. DIAGNOSIS OF ENDOCRINE DISEASE: High-yield thyroid fine-needle aspiration cytology: an update focused on ancillary techniques improving its accuracy. *Eur J Endocrinol*. 2016 Feb;174(2):R53-63.
- **Bongiovanni M**, Uccella S, Giovanella L, Molinari F, Frattini M, Dionigi G, Piantanida E, Nobile A, Sessa F, La Rosa S. Hürtle cells adenoma of the thyroid with post-surgical implants in the neck: clinical, morphological, and molecular analysis of three cases. *Endocr Pathol*. 2016 Apr 23. doi: 10.1007/s12022-016-9430-y [Epub ahead of print] PubMed PMID: 27108352
- Trimboli P, Guidobaldi L, **Bongiovanni M**, Crescenzi A, Alevizaki M, Giovanella L. Use of fine-needle aspirate calcitonin to detect medullary thyroid carcinoma: A systematic review. *Diagn Cytopathol*. 2016 Jan;44(1):45-51.
- Poller DN, Baloch ZW, Fadda G, Johnson SJ, **Bongiovanni M**, Pontecorvi A, Cochand-Priollet B. Thyroid FNA: New classifications and new interpretations. *Cancer Cytopathol*. 2016 Jul;124(7):457-66. doi: 10.1002/cncy.21703. Epub 2016 Feb 23. PubMed PMID: 26914615
- Giovanella L, Campenni A, Treglia G, Verburg FA, Trimboli P, Ceriani L, **Bongiovanni M**. Molecular imaging with (99m)Tc-MIBI and molecular testing for mutations in differentiating benign from malignant follicular neoplasm: a prospective comparison. *Eur J Nucl Med Mol Imaging*. 2016 Jun;43(6):1018-26.
- Rossi ED, Pusztaszeri M, Schmitt F, **Bongiovanni M**, Chandra A, Faquin WC. Thyroid FNA: International perspectives from the European Congress of Cytopathology-Can we cross the bridge of classifications? *Cancer Cytopathol*. 2015 Jan 14.
- **Bongiovanni M**, Piana S, Spitale A, Valli R, Carlinfante G, Gardini G. Comparison of the diagnostic accuracy of thyroid fine-needle aspiration in follicular-patterned lesions using a 5-tiered and a 6-tiered diagnostic system: a double-blind study of 140 cases with histological confirmation. *Diagn Cytopathol*. 2014 Sep;42(9):744-50. doi: 10.1002/dc.23115. Epub 2014 Feb 19. PubMed PMID: 24554627.