

MASTER-Lux

M. Dang (1), D. Stieber (2), R. Toth (2), Lu Zhang (2), L. Filali (2), C. Von Kalle (2) & G. Berchem (1)

1) Centre Hospitalier de Luxembourg / Institut National du Cancer, Luxembourg

2) Luxembourg Research Clinic (LRC), Luxembourg Institute of Health

Patients with advanced rare cancers or early-onset incurable malignancies often exhaust standard-of-care options without a matched targeted therapy. The DKFZ/NCT/DKTK MASTER (Molecularly Aided Stratification for Tumor Eradication) Program, established at NCT Heidelberg in 2013 and extended across all German Cancer Consortium (DKTK) partner sites since 2016, addresses this gap through whole-genome/exome and transcriptome sequencing, structured variant interpretation, and rapid-turnaround molecular tumor board review. In a cohort of more than 8000 patients, comprehensive genomic and transcriptomic profiling within MASTER has been shown to inform clinically actionable treatment recommendations for a substantial proportion of patients with few remaining options [1–5].

The Luxembourg Research Clinic, together with the DKFZ/NCT/DKTK MASTER Program, is establishing a collaboration to adapt and implement this workflow within the Luxembourg healthcare and research ecosystem. Building on the country's first experience with genomic tumor profiling [6], the partnership will define referral and eligibility pathways, sample logistics, multi-omic sequencing, bioinformatics analysis, and molecular tumor board procedures linking Luxembourg clinicians with MASTER expertise in Heidelberg.

References

- 1) Horak P, Heining C, Kreutzfeldt S, et al. Comprehensive genomic and transcriptomic analysis for guiding therapeutic decisions in patients with rare cancers. *Cancer Discov.* 2021;11(11):2780–2795.
- 2) Mock A, Teleanu MV, Kreutzfeldt S, et al. NCT/DKFZ MASTER handbook of interpreting whole-genome, transcriptome, and methylome data for precision oncology. *NPJ Precis Oncol.* 2023;7:109.
- 3) Horak P, Fröhling S. Measuring progress in precision oncology. *Cancer Discov.* 2024;14:18–19.
- 4) Kerle IA, Gross T, Kögler A, et al. Translational and clinical comparison of whole genome and transcriptome to panel sequencing in precision oncology. *NPJ Precis Oncol.* 2025;9(1):9.
- 5) Hübschmann D, Kreutzfeldt S, Roth B, et al. The Knowledge Connector decision support system for multiomics-based precision oncology. *Nat Commun.* 2026;17(1):742.
- 6) Dang M, Schritz A, Goncharenko N, Berchem G. Impact of molecular diagnostics and targeted cancer therapy on patient outcomes (MODIFY): a retrospective study of the implementation of precision oncology. *Mol Oncol.* 2025;19(6):1508–1516.

Biosketch

Michaël DANG, MD

Medical Oncologist

CURRENT AND PAST POSITIONS

Medical Oncologist, Centre Hospitalier de Luxembourg. Molecular oncology expert at the Institut National du Cancer, where he is lead clinician on the National Molecular Tumor Board and in charge of promoting the development of national molecular diagnostics capacities.

Main areas of expertise: molecular and precision oncology; head and neck malignancies; management of molecular tumor boards.

EDUCATION

Diplôme de formation générale en sciences médicales, Sorbonne Université Pierre et Marie Curie (Paris VI), 2016.

Diplôme de formation approfondie en sciences médicales, Sorbonne Université Pierre et Marie Curie (Paris VI), 2019.

Diplôme d'études spécialisées en oncologie médicale, Université du Luxembourg, 2025.

Diplôme inter-universitaire: Médecine moléculaire en cancérologie, Université Paris-Saclay, 2025.

OTHER RELEVANT PROFESSIONAL ACTIVITIES AND ACCOMPLISHMENTS

Dang, M., Schritz, A., Goncharenko, N. and Berchem, G. (2025). Impact of molecular diagnostics and targeted cancer therapy on patient outcomes (MODIFY): a retrospective study of the implementation of precision oncology. Mol Oncol, 19: 1508-1516 (Principal Investigator).

Languages: Luxembourgish, French, German, English.