ESP Giordano Fellowship Profile:

Advanced Diagnostic, Molecular and Translational Training in Academic Dermatopathology

Department of Pathology, MUMC+, Maastricht, The Netherlands

Centre	Department of Pathology, Maastricht University Medical Center+ (MUMC+)
Programme	Advanced training in dermatopathology with optional research track
Training supervisor	Dr. Lisa M. Hillen-Rohlfs, MD, PhD
Head of the Department	Dr. Loes Kooreman, MD
Administrative contact	Mrs. M. Moenen-Simons, office manager m.moenen.simons@mumc.nl; secretariaatstaf.pathologie@mumc.nl
Duration	Usually 2-6 months; up to 12 months may be considered for embedded translational research projects
Annual capacity	Up to two fellows per year, depending on timing, supervision capacity and project fit

1. Welcome to Maastricht

Located at the crossroads of the Netherlands, Belgium, and Germany, the ESP Advanced Training Centre for Dermatopathology at Maastricht University Medical Center+ provides fellows with exposure to a broad international referral network and multidisciplinary expertise within a highly collaborative academic environment. The centre offers a specialized and internationally oriented setting for advanced diagnostic training and translational research in dermatopathology.

The programme is designed for pathology trainees and early-career pathologists seeking to develop expertise in complex inflammatory, melanocytic, and cutaneous oncological pathology. Fellows benefit from close collaboration with specialists in dermatology, dermato-oncology, Mohs micrographic surgery, molecular diagnostics, and cancer research, fostering an integrated approach to patient care, education, and scientific innovation.

2. Why choose Maastricht for a Giordano Fellowship in dermatopathology?

- Integrated dermatopathology, dermatology, dermato-oncology, Mohs surgery, molecular pathology and skin cancer research within one academic medical centre.
- High-volume diagnostic exposure to challenging skin tumour and referral cases, including inflammatory dermatopathology, melanocytic lesions, keratinocyte carcinoma, Merkel cell carcinoma and cutaneous lymphoma.

- Direct clinico-pathological correlation through collaboration with MUMC+ Dermatology, including dermato-oncology, dermato-surgery/Mohs surgery, optical coherence tomography (OCT) diagnostics and the Expert Centre for Genodermatoses.
- A personalised fellowship plan combining diagnostic sign-out exposure, microscopy, laboratory workflow, molecular diagnostics and optional research.
- Access to a strong translational research environment through the GROW - Research Institute for Oncology and Reproduction.

3. Training environment

The fellowship is centred on daily diagnostic dermatopathology and case-based teaching. The exact training plan is tailored to the fellow's previous experience, learning objectives, duration of stay and research interests.

Component	Typical content	Indicative structure
Diagnostic dermatopathology	Case preview, microscopy, differential diagnosis, reporting and discussion of complex cases	Core activity with daily supervision, and weekly dermatopathology expert panel
Macroscopy and laboratory workflow	Exposure to skin specimen handling, margin assessment, standard operating procedures and quality assurance.	Tailored to background and local regulations
Mohs histology	Participation in histological practice related to Mohs micrographic surgery	Tailored blocks
Clinical dermatology	Selected clinical visits and clinico-pathological correlation with Dermatology, including dermato-oncology, dermato-surgery and genodermatoses.	Weekly interdisciplinary dermatopathology conference and scheduled visits
Molecular dermatopathology	Indications, workflow and interpretation of molecular test reulsts; pre-analytics, quality control and integration into reports.	Optional module
Research project	case series, biomarker study, molecular pathology project, Literature review, or project embedded in an ongoing research line.	Optional and individualised

4. Research opportunities

A unique feature of the Maastricht programme is the integration of advanced diagnostic training with translational research. Fellows are encouraged to participate in focused projects within dermatopathology, molecular pathology and dermato-oncology. Depending on the duration of the fellowship and mutual interests, projects may range from literature reviews and retrospective case series to biomarker studies, molecular profiling, AI-supported image analysis and translational oncology research.

In selected cases, a successful fellowship project may develop into a long-term international research collaboration. For highly motivated fellows, and subject to scientific quality, supervision capacity, funding and university requirements, such a project may also serve as the basis for an external PhD trajectory in collaboration with the GROW - Research Institute for Oncology and Reproduction and Maastricht University.

5. Principal faculty and research lines

Research lead / collaborator	Relevant focus for fellowship candidates
Dr. Lisa M. Hillen-Rohlfs, MD, PhD (Dermatopathologist, programme director)	melanocytic neoplasms; molecular classification; inflammatory microenvironment; integration of molecular diagnostics; AI-supported analysis of Mohs frozen sections.
Prof. Dr. Léon van Kempen (Clinical Molecular Biologist in Pathology, Head of division of moleculair pathology and Deputy Head of Department of Pathology MUMC+)	Molecular pathology of cutaneous melanoma; melanoma progression; prognostic and predictive biomarkers; translational molecular diagnostics and precision oncology.
Prof. Dr. Klara Mosterd (Dermatologist, Head of Department of Dermatology MUMC+)	Basal cell carcinoma and keratinocyte cancer; Mohs micrographic surgery; dermato-oncology; Gorlin syndrome/ genodermatoses; Optical coherence tomography (OCT) diagnostics; clinical trials in keratinocytic tumours.
Prof. Dr. Manon van Engeland (Researcher, scientific director GROW Research Institute for Oncology and Reproduction, Maastricht University)	Cancer epigenetics; DNA methylation biomarkers; melanoma prognostication; translational molecular oncology; biomarker discovery and validation.

7. Duration, timing and practical information

- Up to two fellows can be accommodated per year.
- The usual duration is 2-6 months.
- A longer stay, up to 12 months, may be considered when the fellow is embedded in a translational research project.
- Starting periods are agreed individually between the applicant and the centre, preferably in periods that allow optimal supervision and integration into the diagnostic and research workflow.
- The department does not charge training fees for the fellowship.
- The centre can assist with practical information on accommodation and travel where possible.

8. Expected learning outcomes

By the end of the stay, fellows should have strengthened their diagnostic confidence in complex dermatopathology and improved their ability to integrate clinical, histological, immunohistochemical and molecular information into meaningful diagnostic reports. Fellows should also gain practical insight into how an academic dermatopathology service interacts with Mohs surgery, dermato-oncology, genodermatology, molecular pathology and translational research.

Publications and outputs

The following list is deliberately selective and fellowship-oriented. It highlights work that illustrates Maastricht's strengths in dermatopathology, skin cancer care, Mohs micrographic surgery and OCT diagnostics, melanoma molecular pathology, as well as translational biomarker research. The five publications most relevant to skin pathology are listed for each faculty member. For a more comprehensive overview of their research output, please refer to their Google Scholar profiles or PubMed publication lists.

Dr. Lisa M Hillen-Rohlfs

- Geijs, D. J., Hillen, L. M., Dooper, S., Winnepenninckx, V., Varra, V., Carr, D. R., ... & Amir, A. (2025). Weakly supervised classification of Mohs surgical sections using artificial intelligence. Modern Pathology, 38(2), 100653.
- Geijs, D. J., Dooper, S., Aswolinskiy, W., Hillen, L. M., Amir, A. L., & Litjens, G. (2024). Detection and subtyping of basal cell carcinoma in whole-slide histopathology using weakly-supervised learning. Medical Image Analysis, 93, 103063.
- Vandyck, H. H., Hillen, L. M., Bosisio, F. M., van den Oord, J., Zur Hausen, A., & Winnepenninckx, V. (2021). Rethinking the biology of metastatic melanoma: A holistic approach. Cancer and Metastasis Reviews, 40(2), 603-624.
- Hillen, L. M., Geybels, M. S., Spassova, I., Becker, J. C., Gambichler, T., Garmyn, M., ... & Winnepenninckx, V. (2020). A digital mRNA expression signature to classify challenging Spitzoid melanocytic neoplasms. FEBS Open Bio, 10(7), 1326-1341.
- Hillen, L. M., Van den Oord, J., Geybels, M. S., Becker, J. C., Zur Hausen, A., & Winnepenninckx, V. (2018). Genomic landscape of spitzoid neoplasms impacting patient management. Frontiers in medicine, 5, 344.

Prof. Dr. Léon van Kempen

- Jutten E, van Kempen LCLT, Diercks GFH, van Leeuwen BL, Kruijff S, Wevers KP (2025) Real-World Evidence of the Prevalence of Driver Mutations in Anorectal Melanoma. *Mol Diagn Ther*., 29(2):229-238.
- Barrutia L, Schuuring E, Rácz E, Diercks GFH, van Kempen LC. (2024) Utility and Micro-Costing Framework for TERT Promoter Mutation Analysis in Melanocytic Lesions of Uncertain Malignant Potential: A Retrospective Study in Dutch Local Clinical Practice. Diagnostics (Basel). 4(15):1665.
- Hench, J., Mihic-Probst, D., Agaimy, A., Frank, S., Meyer, P., Hultschig, C., ... & EORTC Melanoma Group. (2023). Clinical, histopathological and molecular features of dedifferentiated melanomas: An EORTC Melanoma Group Retrospective Analysis. *European Journal of Cancer*, *187*, 7-14.
- de la Fouchardiere, A., Blokx, W., van Kempen, L. C., Luzar, B., Piperno-Neumann, S., Puig, S., ... & EURACAN. (2021). ESP, EORTC, and EURACAN Expert Opinion: practical recommendations for the

pathological diagnosis and clinical management of intermediate melanocytic tumors and rare related melanoma variants. *Virchows Archiv*, *479*(1), 3-11.
- Kilsdonk MJ, Romeijn TR, Kelder W, van Kempen LC, Diercks GF Angiosarcomatous transdifferentiation of metastatic melanoma. (2020). *J Cutan Pathol*. 47(12):1211-1214.
- Szumera-Ciećkiewicz A, Bosisio F, Teterycz P, Antoranz A, Delogu F, Koljenović S, van de Wiel BA, Blokx W, van Kempen LC, Rutkowski P, Christopher van Akkooi A, Cook M, Massi D, EORTC Melanoma Group. (2020) SOX10 is as specific as S100 protein in detecting metastases of melanoma in lymph nodes and is recommended for sentinel lymph node assessment. *Eur J Cancer*. 137:175-182

Prof. Dr. Klara Mosterd

- Adan, F., Nelemans, P. J., Essers, B. A., Brinkhuizen, T., Dodemont, S. R., Kessels, J. P., ... & Mosterd, K. (2022). Optical coherence tomography versus punch biopsy for diagnosis of basal cell carcinoma: a multicentre, randomised, non-inferiority trial. The Lancet Oncology, 23(8), 1087-1096.
- Jansen, M. H., Kessels, J. P., Nelemans, P. J., Kouloubis, N., Arits, A. H., van Pelt, H. P., ... & Mosterd, K. (2019). Randomized trial of four treatment approaches for actinic keratosis. *New England Journal of Medicine*, *380*(10), 935-946.
- Arits, A. H., Mosterd, K., Essers, B. A., Spoorenberg, E., Sommer, A., De Rooij, M. J., ... & Kelleners-Smeets, N. W. (2013). Photodynamic therapy versus topical imiquimod versus topical fluorouracil for treatment of superficial basal-cell carcinoma: a single blind, non-inferiority, randomised controlled trial. The lancet oncology, 14(7), 647-654.
- Mosterd, K., Krekels, G. A., Nieman, F. H., Ostertag, J. U., Essers, B. A., Dirksen, C. D., ... & Kelleners-Smeets, N. W. (2008). Surgical excision versus Mohs' micrographic surgery for primary and recurrent basal-cell carcinoma of the face: a prospective randomised controlled trial with 5-years' follow-up. The lancet oncology, 9(12), 1149-1156.

Prof. Dr. Manon van Engeland

- van den Hurk, K., Lommen, K., Coussement, L., van den Kerkhof, D., Beckers, M., Trooskens, G., ... & van Engeland, M. (2025). Comprehensive analysis of the melanoma DNA methylome identifies Lymphocyte Antigen 75 (LY75) methylation as an independent marker predicting poor clinical outcome. Journal of Investigative Dermatology.
- Massen M, Lommen K, Wouters KAD, Vandersmissen J, van Criekinge W, Herman JG, Melotte V, Schouten LJ, van Engeland M, Smits KM. Technical considerations in PCR-based assay design for diagnostic DNA methylation cancer biomarkers. Clin Epigenetics. 2022 Apr 27;14(1):56.
- Koch A, Joosten SC, Feng Z, de Ruijter TC, Draht MX, Melotte V, Smits KM, Veeck J, Herman JG, Van Neste L, Van Criekinge W, De Meyer T, van Engeland M. Analysis of DNA methylation in cancer: location revisited. Nat Rev Clin Oncol. 2018 Jul;15(7):459-466
- Gao, L., Van Den Hurk, K., Nsengimana, J., Laye, J. P., Van Den Oord, J. J., Beck, S., ... & Van Doorn, R. (2015). Prognostic significance of promoter hypermethylation and diminished gene expression of SYNPO2 in melanoma. Journal of Investigative Dermatology, 135(9), 2328-2331
- Hughes, L. A., Melotte, V., De Schrijver, J., De Maat, M., Smit, V. T., Bovée, J. V., ... & Van Engeland, M. (2013). The CpG island methylator phenotype: what's in a name?. Cancer research, 73(19), 5858-5868.

10. Application and invitation process

Applicants should follow the official ESP Giordano Fellowship instructions, eligibility criteria and deadlines. The Maastricht centre can provide a formal invitation letter once the applicant, proposed training period, fellowship aims and supervision plan have been agreed.

- Applicants are encouraged to contact the centre early to discuss availability, learning objectives and possible research alignment.
- The final application remains the responsibility of the applicant and must comply with ESP requirements and deadlines.