

DELIVERABLE 3.3

Report on Short-Term Visits



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1. INTRODUCTION AND OBJECTIVES

Work Package 3 (WP3) of the Horizon Europe-funded GEMSTONE Project, entitled “Transfer of Research Knowledge and Capacity”, was designed to address existing gaps between partner institutions through the systematic transfer of scientific knowledge, advanced research methodologies, and technical competences. A central component of WP3 was Task 3.2: Short-Term Visits, which aimed to facilitate hands-on, technique-focused training through reciprocal visits between Acibadem Mehmet Ali Aydınlar University (ACU) and Lund University (ULUND).

As outlined in the Description of Action (DoA, Part B, Table 1.2.2), the short-term visits were conceived as targeted research-driven mobility actions, enabling ACU researchers to acquire top-level experimental approaches and laboratory practices not available at the initial stage of the project, while also allowing ULUND researchers to gain access to ACU’s specialised expertise in epilepsy research and in-vivo experimental paradigms.

1.1. Scope of Knowledge and Technology Transfer

Within the framework of Task 3.2, the short-term visits supported the transfer and implementation of a broad range of advanced techniques and research competences, including:

- **In-vivo and ex-vivo experimental approaches**, such as video-EEG monitoring in absence epilepsy models, chemogenetic modulation, ex-vivo multi-unit electrophysiological recordings, and in-vivo intracerebral pharmacological applications.
- **Advanced microscopy and imaging techniques**, including confocal microscopy and correlative electron microscopy (CLEM), enabling the identification of specific fluorescently labelled cells followed by ultrastructural analysis at the electron microscopy level.
- **Transgenic animal technologies**, including mouse in-vitro fertilisation (IVF) procedures, generation and validation of double transgenic models (e.g. SNCA-related models), and the acquisition and use of database platforms for the management of transgenic animal colonies.
- **Molecular and cellular assays**, encompassing immunohistochemical and biochemical analyses, assessment of RNA and DNA expression, assessment of protein expression, mitochondrial function analyses, and dual-marker immunohistochemistry.
- **Laboratory management competences**, including troubleshooting, implementation of standard operating procedures (SOPs), best practices in laboratory organisation, and data management workflows.

In addition, complementary knowledge transfer from ACU to ULUND focused on animal models of epilepsy and seizures, behavioural and electrophysiological phenotyping, seizure analysis, and video-EEG methodologies.

2. IMPLEMENTATION OF SHORT-TERM VISITS

Between Month 1 and Month 38 of the project, a total of 20 short-term visits were implemented, involving researchers, early-stage researchers, and technical staff from both ACU and ULUND. These visits varied in duration from short intensive stays of 3–5 days to extended research placements lasting up to 89 days, depending on the complexity of the techniques and the research objectives addressed.

The implemented visits covered a wide range of project tasks (Tasks 2.2–2.7 and Task 3.2) and enabled:

- Direct hands-on training in specialised experimental techniques at ULUND laboratories for ACU researchers.
- On-site transfer of epilepsy-related experimental know-how and electrophysiological expertise to ACU through reciprocal visits by ULUND researchers.
- The progressive embedding of newly acquired methods into ACU laboratories, ensuring long-term sustainability beyond the project lifetime.

The short-term visits were closely coordinated with Task 3.3: Internal Events and Workshops. Knowledge and skills acquired during mobility periods were systematically disseminated within ACU through internal workshops, interactive courses, and hands-on demonstrations, thereby extending the impact of the visits to academic staff, early-stage researchers, and technicians not directly involved in the mobility actions.



Image 1: Photo from Filiz Onat's short-term visit to ULUND (03–05 May 2023).

Table 1: Final plan of short-term visits in WP3 (Part 1/2).

No.	Name and affiliation	Host	Related task(s) and/or technique(s)	Visit length and period
1	My Andersson, ULUND	ACU	<ul style="list-style-type: none"> Task 2.2: Chemogenetic Modulation Task 3.2: Video-EEG Recording in Absence Epilepsy Models 	3 days, Month 1–2: 31 Oct–02 Nov 2022
2	Nihan Çarçak Yılmaz, ACU	ULUND	<ul style="list-style-type: none"> Task 2.2: Chemogenetic Modulation 	17 days, Month 7: 13–29 Apr 2023
3	Filiz Onat, ACU	ULUND	<ul style="list-style-type: none"> Task 2.3: Monitoring Cortical Neurodevelopment of Cortical Layer 6b Neurons in GAERS 	3 days, Month 8: 03–05 May 2023
4	Elif Nedret Keskinöz, ACU	ULUND	<ul style="list-style-type: none"> Task 3.2: Correlative Electron Microscopy 	5 days, Month 8: 22–26 May 2023
5	Samed Özer, ACU	ULUND	<ul style="list-style-type: none"> Task 3.2: Mouse IVF Procedures, Acquisition of Database Platform for Transgenic Animal Management 	5 days, Month 8: 22–26 May 2023
6	Aslı Önder Gül, ACU	ULUND	<ul style="list-style-type: none"> Task 3.2: Mouse IVF Procedures, Acquisition of Database Platform for Transgenic Animal Management 	5 days, Month 8: 22–26 May 2023
7	Talat Taygun Turan, ACU	ULUND	<ul style="list-style-type: none"> Task 2.6: Validation of SNCA Deletion in Double Transgenic Model 	31 days, Month 12–13: 04 Sep–04 Oct 2023
8	My Andersson, ULUND	ACU	<ul style="list-style-type: none"> Task 2.2: Chemogenetic Modulation Task 2.3: Monitoring Cortical Neurodevelopment of Cortical Layer 6b Neurons in GAERS Task 3.2: Seizure Analysis 	4 days, Month 16: 17–20 Jan 2024
9	Özkan Özdemir, ACU	ULUND	<ul style="list-style-type: none"> Task 2.5: Generation of Double Transgenic Model: SNCA Mice 	15 days, Month 19: 05–19 Apr 2024
10	Melis Yavuz, ACU	ULUND	<ul style="list-style-type: none"> Task 3.2: Confocal Microscopy 	30 days, Month 19–20: 13 Apr–12 May 2024

Table 1: Final plan of short-term visits in WP3 (Part 2/2).

11	Nihan Çarçak Yılmaz, ACU	ULUND	<ul style="list-style-type: none"> • Tasks 2.3: Monitoring Cortical Neurodevelopment of Cortical Layer 6b Neurons in GAERS • Task 2.4: Characterization of Neuropeptide Receptor Expression and Pharmacological Manipulations of Layer 6b Cells in GAERS) • Task 2.7: Data Analysis • Task 3.2: Ex-Vivo Multi-Unit Recording 	59 days, Month 21–22: 03 Jun–31 Jul 2024
12	Nursima Mutlu, ACU	ULUND	<ul style="list-style-type: none"> • Task 2.4: Characterization of Neuropeptide Receptor Expression and Pharmacological Manipulations of Layer 6b Cells in GAERS 	63 days, Month 25–27: 06 Oct–07 Dec 2024
13	My Andersson, ULUND	ACU	<ul style="list-style-type: none"> • Task 3.2: Ex-Vivo Multi-Unit Recordings 	4 days, Month 26: 25–28 Nov 2024
14	Jenny Wickham, ULUND	ACU	<ul style="list-style-type: none"> • Task 3.2: Ex-Vivo Multi-Unit Recordings 	4 days, Month 26: 25–28 Nov 2024
15	Talat Taygun Turan, ACU	ULUND	<ul style="list-style-type: none"> • Task 2.6: Validation of SNCA Deletion in Double Transgenic Model 	89 days, Month 30–32: 03 Mar–29 May 2025
16	Merve Çavuş, ACU	ULUND	<ul style="list-style-type: none"> • Task 2.4: Characterization of Neuropeptide Receptor Expression and Pharmacological Manipulations of Layer 6b Cells in GAERS • Task 3.2: Dual-Marker Immunohistochemistry 	33 days, Month 32–33: 06 May–07 Jun 2025
17	Linda Wei, ULUND	ACU	<ul style="list-style-type: none"> • Task 3.2: Mouse IVF Procedures, Troubleshooting, SOPs 	5 days, Month 38: 12–16 Nov 2025
18	Sara Andersson, ULUND	ACU	<ul style="list-style-type: none"> • Task 3.2: Mouse IVF Procedures, Troubleshooting, SOPs 	5 days, Month 38: 12–16 Nov 2025
19	Thomas Blom, ULUND	ACU	<ul style="list-style-type: none"> • Task 3.2: Mouse IVF Procedures, Troubleshooting, SOPs 	5 days, Month 38: 12–16 Nov 2025
20	Courtney Wright, ULUND	ACU	<ul style="list-style-type: none"> • Task 2.6: Validation of SNCA Deletion in Double Transgenic Model 	5 days, Month 38: 14–18 Nov 2025

2.1. Deviations from the Planned Short-Term Visits

While the majority of the planned short-term visits outlined in the DoA were successfully implemented, the execution of Task 3.2 required a degree of flexibility. Adjustments were introduced in response to personnel changes, health constraints, visa and scheduling issues, and evolving research needs. Importantly, these deviations did not compromise the overall objectives of WP3, as responsibilities were redistributed and key knowledge transfer activities were preserved.



Image 2:

Photo from My Andersson's short-term visit to ACU (31 Oct–02 Nov 2022).



Image 3:

Photo from Samed Özer and Aslı Önder Gül's short-term visit to ULUND (22–26 May 2023).

3. MONITORING AND EVALUATION

In order to systematically monitor the progress, learning outcomes, and career development of ACU researchers participating in short-term visits under WP3, a structured monitoring and evaluation framework was implemented. This framework was based on pre- and post-visit questionnaires designed using a scientifically grounded approach to capture expectations, activities, outcomes, and impacts of the mobility actions.

3.1. Methodology

The monitoring process was built around two complementary survey instruments administered to GEMSTONE researchers before and after their short-term visits to ULUND. The questionnaires were structured to enable qualitative and comparative analysis, allowing the project team to assess changes in knowledge, skills, and professional outlook attributable to the visits.

The pre-visit questionnaire focused on:

- Researchers' expectations and motivations for the visit
- Awareness and understanding of the aims and targets of the visit in relation to WP3 objectives
- Alignment between individual agendas and project-level goals
- Preparation processes, including supervision and definition of expected outputs
- Anticipated challenges and risk awareness
- Expected contributions of the visit to the researcher's academic and professional development

The post-visit questionnaire concentrated on:

- Overall assessment of the visit and whether expectations were met
- Adequacy of supervision and mentoring at the host institution
- Achievement of planned objectives and expected results
- Detailed reporting of accomplished tasks and scientific outputs
- Identification of uncompleted tasks, underlying reasons, and mitigation strategies
- Knowledge and skills acquired, including methodological, technical, and conceptual competences
- Self-assessment of newly gained qualifications and professional growth
- Evaluation of how anticipated challenges were addressed
- Documentation of scientific evidence and results generated during the visit

By comparing responses collected before and after each visit, the GEMSTONE Project was able to track individual progress against predefined objectives, evaluate the effectiveness of the short-term visits, and assess their contribution to both project goals and researchers' career development. This approach enabled the identification of:

- The extent to which planned research activities were successfully implemented
- The relevance and depth of transferred knowledge and techniques
- The adequacy of preparatory measures and supervisory support
- The ability of researchers to anticipate, manage, and overcome practical and scientific challenges
- Tangible scientific outputs and evidence resulting from the visits

The monitoring and evaluation framework served not only as a reporting and quality assurance tool, but also as a career development instrument. It provided structured reflection opportunities for researchers, encouraging critical assessment of their learning process and professional growth. At the project level, the collected data supported informed decision-making, enabling adjustments to ongoing and future mobility actions and ensuring alignment with WP3 objectives.

This systematic monitoring and evaluation approach ensured that the short-term visits under Task 3.2 were outcome-oriented, transparent, and impactful, and that their contribution to capacity building and long-term institutional strengthening at ACU could be robustly demonstrated.

3.2. Analysis of Outcomes

The monitoring interviews and questionnaire data collected before and after the short-term visits enabled a differentiated analysis of outcomes according to the career stage and professional role of the participating ACU staff members. Based on this analysis, visiting researchers and staff were grouped into three main categories. Each group benefited from the mobility actions in distinct yet complementary ways.



Image 4: Photo from Thomas Blom, Linda Wei, and Sara Andersson's short-term visit to ACU (12–16 Nov 2025).

- **Senior and mid-career researchers** primarily experienced benefits related to high-level scientific exchange and strategic research development. Their visits facilitated two-way knowledge transfer between ACU and ULUND, contributing to the refinement of existing research approaches and the identification of complementary expertise. These researchers reported the generation of new research ideas, the initiation of potential long-term collaborations, and valuable opportunities to benchmark research practices, infrastructure, and organisational models in a Widening country context against those of a leading European research institution. This comparative perspective supported strategic thinking on future project development and institutional capacity strengthening.
- **Early-career researchers**, including doctoral candidates, highlighted the strong contribution of the short-term visits to their professional and academic development. The visits enabled the acquisition of advanced experimental techniques directly relevant to their research topics and, in several cases, to their doctoral theses. Participation in international research teams enhanced their exposure to diverse scientific cultures and working practices, while the mobility experience itself increased their self-confidence, independence, and sense of belonging within the international research community. These outcomes were consistently reflected in post-visit self-assessments and evaluations.
- **Technical staff** benefited primarily from targeted knowledge transfer and hands-on training in specialised laboratory techniques and workflows. In addition to acquiring new technical competences, technicians reported improvements in laboratory organisation, troubleshooting approaches, and implementation of best practices in laboratory management. These outcomes contributed directly to the strengthening of ACU's research capacity and the sustainability of transferred techniques.

The monitoring process also identified several challenges encountered during the implementation of the short-term visits. These challenges were common to international mobility actions and varied across participant groups. A language barrier was reported, particularly by technical staff, occasionally affecting the efficiency of day-to-day communication and training activities. Scheduling constraints and visa-related difficulties led to delays, rescheduling, or cancellation of some planned visits. In addition, cultural differences in working styles and social practices initially posed minor challenges in both professional and social contexts.

Despite these constraints, the challenges were effectively mitigated through the mutual willingness, flexibility, and goodwill demonstrated by both host and visiting teams. Supportive supervision, peer assistance, and an open collaborative atmosphere facilitated adaptation and strengthened teamwork. As a result, the overall mobility experience remained positive, productive, and conducive to achieving the objectives of WP3.

3.3. Impact and Added Value

The short-term visits under WP3 had a substantial impact on institutional capacity building at ACU. They enabled:

- The acquisition and local implementation of advanced methodologies previously unavailable at ACU
- The strengthening of researchers' professional profiles through exposure to different scientific environments, working cultures, and research infrastructures
- Improved laboratory organisation and strategic planning, as the visits clarified the equipment, infrastructure, and organisational facilities required to sustainably implement the transferred techniques after the end of the project
- Enhanced bilateral collaboration between ACU and ULUND, fostering trust, long-term scientific exchange, and joint problem-solving

Overall, individual training through research-driven mobility not only enhanced technical competences but also stimulated scientific creativity and broadened career perspectives for participating researchers.

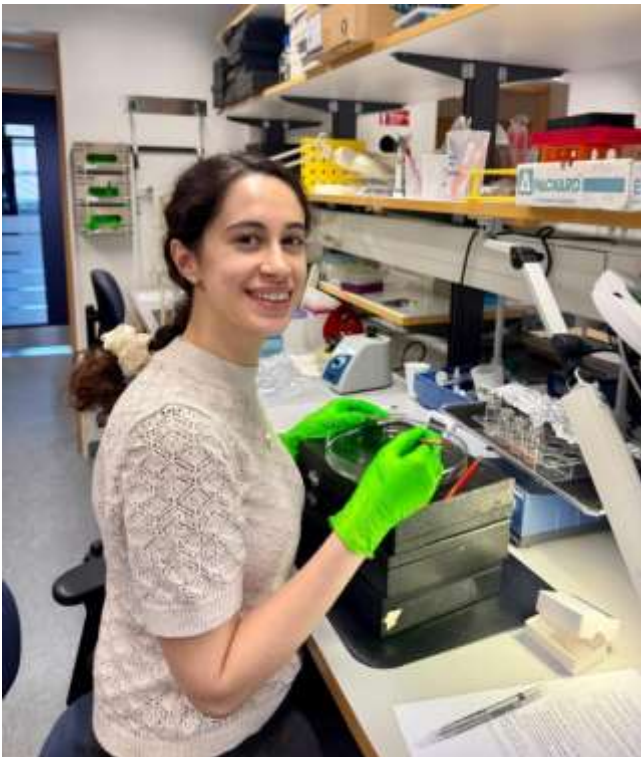


Image 5:

Photo from Merve Çavuş's short-term visit to ULUND (06 May–07 Jun 2025).



Image 6:

Photo from Talat Taygun Turan's short-term visit to ULUND (03 Mar–29 May 2025).

4. CONCLUSION

Task 3.2 of the GEMSTONE Project was successfully implemented through a series of strategically designed short-term visits that enabled the effective transfer of advanced research knowledge, specialised techniques, and laboratory practices between ACU and ULUND. Despite necessary deviations from the original implementation plan, the core objectives of WP3 were fully achieved through flexible reallocation of responsibilities, adaptive scheduling, and close coordination between partners.

A key strength of the implementation of the short-term visits was the establishment of a systematic monitoring and evaluation framework, based on structured pre- and post-visit questionnaires. This approach ensured continuous oversight of individual researchers' objectives, preparedness, learning outcomes, and scientific outputs, while also providing a robust mechanism to assess the effectiveness and impact of the mobility actions. The comparative analysis of responses enabled the project to track progress, identify challenges at an early stage, and document measurable improvements in technical competences, methodological expertise, and professional maturity.

The integration of monitoring activities with internal workshops and training events under Task 3.3 further amplified the impact of the short-term visits. Knowledge and skills acquired during mobility periods were disseminated within ACU, extending capacity building beyond individual participants and contributing to institutional-level strengthening. Importantly, the structured feedback collected through the evaluation process informed strategic planning, including decisions related to laboratory infrastructure, equipment needs, and organisational practices required for the sustainable implementation of newly acquired techniques.

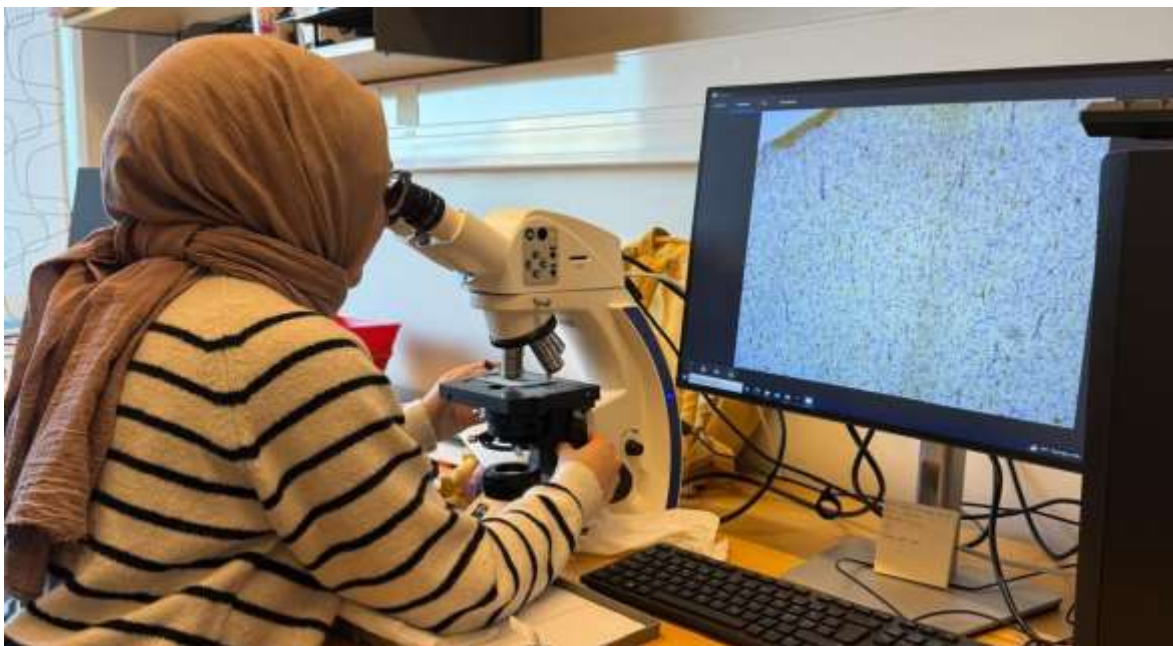


Image 7: Photo from Nursima Mutlu's short-term visit to ULUND (06 Oct–07 Dec 2024).

In conclusion, the short-term visits under WP3 significantly enhanced ACU's research capacity, improved the international profile and career perspectives of participating researchers, and reinforced long-term scientific collaboration between the partner institutions. These achievements provide a solid foundation for continued excellence in neuroscience research beyond the lifetime of the GEMSTONE Project.



Image 8: Photo from Jenny Wickham's short-term visit to ACU (25–28 Nov 2024).



Image 9: Photo from Courtney Wright's short-term visit to ACU (12–16 Nov 2025).