

## Patient Newsletter January 2025

### Characterising risk and biology Of Smouldering Myeloma for early detection Of Symptomatic myeloma

#### Welcome to our first patient newsletter!

**COSMOS has recruited over 350 patients in England and Wales. Your participation in the study will help us understand why some people with smouldering myeloma develop active myeloma. We want to use this understanding to develop treatments to stop people progressing to myeloma.**

Dr Lydia Lee works at UCL investigating immune dysfunction in myeloma disease progression and is a consultant haematologist at UCLH, treating myeloma patients in clinic.



Dr Elise Rees is a postdoctoral scientist working in the UCL myeloma lab. She is studying the role of NK cells in the immune system in smouldering myeloma.



Jess Kimber is the COSMOS laboratory technician at UCL, responsible for the patient samples that are collected as part of the study.



Rebekah Allen is a laboratory technician at UCL studying the role of NK cells in the immune system as well as processing patient samples from the COSMOS study in the UCL lab.



Dr Louise Ainley is a clinical research fellow at UCL studying the immune system in smouldering myeloma. She also sees patients in the UCLH smouldering myeloma clinic.



#### The COSMOS team



Professor Kwee Yong is the Chief Investigator of the COSMOS study. She is the group leader of the multiple myeloma research lab at UCL and a consultant haematologist at University College Hospital (UCLH) where she runs the smouldering myeloma clinic.



Dr Karthik Ramasamy is the co-Chief Investigator of the COSMOS study. He is a consultant haematologist in Oxford treating myeloma patients and Director of the Oxford Myeloma Translational Research Centre.



Dr Grant Vallance is based in Oxford as an information manager and teaches on the design and implementation of clinical trials at the University of Oxford. He is the data manager for the COSMOS study.



Dr Eileen Boyle is a Wellcome Trust clinician scientist at UCL investigating the role of immune dysfunction in shaping premalignant conditions and the role of aneuploidy in disease progression. She also sees patients in the UCLH smouldering myeloma clinic.



Dr Dan Hughes is a clinical research fellow at UCL studying the consequences of chromosome loss in myeloma. He also sees patients in the UCLH smouldering myeloma clinic including those on COSMOS.

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One of the most important parts of COSMOS is the samples of bone marrow and blood that we collect from participants. This allows us to try to understand why some people with smouldering myeloma progress to active myeloma. We are studying how the immune system may affect whether people progress to myeloma or not. Below are some recent findings from the study.

Kane Foster is a PhD student and bioinformatician studying the effect of T cells in myeloma using patient samples from the COSMOS study. He presented at the **American Society of Haematology** meeting in San Diego December 2024. Kane's work shows that there are different types of T cells found in smouldering and symptomatic myeloma. This suggests that the immune system's response to myeloma could be changing the types of T cells in the immune system. This helps us understand how myeloma interacts with the immune system in disease progression

Dr Elise Rees presented her work at the **International Myeloma Society** meeting in Rio de Janeiro in September 2024. Using samples from the COSMOS study Elise found that certain populations of NK cells, part of the immune system that can be involved in killing cancer cells, changed from smouldering to symptomatic myeloma. She found that there were increased populations of NK cells in symptomatic myeloma that had less ability to kill the myeloma cells. This could help us understand what causes some patients with smouldering myeloma to progress to symptomatic cancer.

Dr Dan Hughes presented clinical results from the COSMOS study at the **International Myeloma Society** meeting in Rio de Janeiro in September 2024. Using bone marrow samples kindly donated by patients enrolled on COSMOS Dan showed that patients with evolving disease (rising paraprotein or light chain markers of myeloma) had changes in the immune cells in their bone marrow with a rise in a type of T-cell (NKT cell) while those without evolving disease had a decrease in a population of NK cells. This could be an early suggestion that monitoring changes in immune cells in the bone marrow may help to identify patients with smouldering myeloma at higher risk of early progression.

Annabel Laidler is a PhD student studying how T cells recognise tumour in myeloma using patient samples from COSMOS. Annabel presented her work on T cell receptor (TCR) sequencing at the **International Myeloma Society** meeting in Rio de Janeiro in September 2024. This provides valuable insights into the specific targets of different T cells. TCR sequencing was performed on samples collected at various time points from COSMOS patients. Analysis of this data showed some types of T cells disappeared at progression to symptomatic myeloma. This was not seen in patients that didn't progress. We believe that these T cells are responsible for maintaining stable smouldering disease and when lost it allows progression to symptomatic myeloma.

The COSMOS team would like to thank all participants and their families for supporting the study, we look forward to sharing more updates as the trial progresses.