Press release AJ v. 1

The XIX. Myeloma and VII. Cell Therapy Workshop (MCTW), held on October 10-11, 2024 at the Quality Hotel Ostrava, successfully brought together esteemed researchers, clinicians, and bioinformaticians committed to advancing the field of hematological malignancies. The two-day international meeting, organized by Blood Cancer Research Group (www.bcrg.cz) and Czech Myeloma Group (www.myeloma.cz), featured over 20 distinguished speakers this year who presented cutting-edge research spanning multiple myeloma immunotherapy, immunomonitoring, and cell therapies, facilitating impactful discussions and collaborations among attendees from various disciplines.

The workshop commenced with **Session I: Basic Research in Multiple Myeloma**, where speakers shared pioneering research efforts aimed at understanding myeloma pathophysiology. Zoltán Kellermayer, MD, PhD, discussed the composition of bone marrow adipose tissue in multiple myeloma patients, shedding light on the potential impact of the microenvironment on disease progression. Following this, Narendra Varma Gottumukkala, MSc delivered a thought-provoking presentation on the transfer of mitochondria through tunneling nanotubes in B cell malignancies. The session concluded with Assoc. Prof. Michal Šimíček presented groundbreaking developments in novel anti-BCRG1 Allogenic CAR T-cells, prompting lively discussions about innovative treatment strategies and therapeutic applications.

In **Session II: Academic Approach to CAR T Therapy**, experts from various countries shared their experiences and insights into CAR-T therapy implementation. Natalia Tovar, MD, joined online to discuss the Spanish experience, emphasizing an academic model that fosters collaboration between research and clinical practices. Prof. Sebastian Giebel outlined recent advancements in allogeneic hematopoietic cell transplantation for multiple myeloma in Poland, while Assoc. Prof. Pavel Otáhal discussed the status of CAR-T therapy in the Czech Republic, highlighting local progress and challenges. The session concluded with Sandra Charvátová's, MD, PhD presentation on establishing a cell therapy production facility in Ostrava, setting the stage for future clinical applications.

Session III: Predictors of Treatment Response in Immunotherapy explored the evolving landscape of therapies targeting multiple myeloma. Prof. Maximilian Merz provided insights into the ideal sequence of T-cell engaging therapies, demonstrating the necessity for tailored treatment regimens. Ondřej Venglář, PhD delivered a strategic overview of monitoring anti-BCMA CAR-T cells and other immune subsets in myeloma patients, underlining the need for sophisticated tracking methods. The session further examined mechanisms of resistance, as Tarek H. Mouhieddine, MD discussed significant findings related to patients receiving Talquetamab. Junia Vieira dos Santos's, MD, PhD analysis of single-cell immune profiling added a novel dimension to understanding treatment dynamics, fostering vital conversations about optimizing patient outcomes.

Session IV: Future Perspectives in CAR T-Cell Therapy presented innovative strategies and developments in the realm of CAR T-cell technologies. Assoc. Prof. Maria Themeli captivated the audience with her presentation on developing CAR T-cells from stem cells, which promises to enhance the availability and efficacy of treatment options. Prof. Elzbieta Sarnowska introduced cutting-edge research on nanobodies and nanobody-based CARs, highlighting their potential advantages in targeting myeloma cells. Additionally, Simon Sylvain, PhD discussed sensitive and bispecific chimeric TCRs for cancer therapy, showcasing promising avenues for improved response rates. The session concluded with Piotr Celichowski, PhD addressing current engineering approaches for allogeneic CAR T-cells, reinforcing collaborative efforts to advance the field.

The workshop also addressed the critical area of **New perspectives on rare monoclonal gammopathies** in **Session V**, where experts illuminated specific diagnostics and therapeutic innovations. Ruba Hammad, MSc presented her findings on highly efficient genome editing in pluripotent stem cells under GMP-compatible

conditions, illustrating the potential for these technologies to revolutionize treatment and Nicolò Danesin, MD highlighted the diagnostic challenges associated with Waldenstrom Macroglobulinemia, fostering discussions on overcoming barriers to effective treatment for rare conditions.

As the final session of the event, **Session VI: Challenges in Bioinformatics** cast light on the intricate relationships within the myeloma microenvironment. Prof. Stephen L. Nutt unraveled the diversity and functions of tissue-resident plasma cells, prompting discussions about their roles in disease progression. Prof. Niels Weinhold presented on spatial architecture in myeloma, revealing new insights into tumor microenvironments at the single-cell level. Romanos Sklavenitis-Pistofidis, MD, PhD provided compelling data on using single-cell RNA sequencing to identify circulating tumor cells, while Moutaz Helal, MSc examined the multicellular ecosystems in extramedullary myeloma, and Anjana Sithara Anilkumar, MSc, presented about composition and fitness of T and NK cells in extramedullary myeloma tumor microenvironment, maintaining a focus on advancing bioinformatics as a tool for enhancing therapeutic strategies.

The **poster session** showcased a variety of innovative research, but the standout winner was Prof. Tomasz Sarnowski with his compelling poster titled "Nanobodies - A Black Horse in Highly Advanced Technologies of the Future." His work captivated the audience by highlighting the potential of nanobodies in revolutionizing diagnostics and therapeutics, emphasizing their unique advantages over conventional antibodies. Prof. Sarnowski's engaging presentation and the significance of his findings earned him well-deserved recognition, sparking insightful discussions among attendees about the future impact of nanobody technology in various fields.

The success of this year's workshop was a testament to the dedication and collaboration that characterize the field of multiple myeloma research and cell therapy. We extend our heartfelt gratitude to all the speakers, participants, organizers, and sponsors who contributed to the MCTW, facilitating an enriching exchange of knowledge that will undoubtedly propel future innovations in diagnosing and treating hematological malignancies. We look forward to continuing this dynamic discourse and fostering collaborative initiatives in subsequent workshops and to the next year XX. Myeloma and VIII. Cell Therapy Workshop.