

GSCN Travel Award Report

The 63rd Annual Particle Therapy Co-operating Group (PTCOG) Conference, 2-7 June in Buenos Aires, Argentina

The 63rd Annual PTCOG (Particle Therapy Co-Operative Group) Conference was a remarkable gathering that fostered innovation, collaboration, and excellence in particle therapy science and technology. This year's meeting marked a historic milestone as the first PTCOG conference held in South America. Hosted in the vibrant and cosmopolitan city of Buenos Aires, Argentina, the event coincided with the grand opening of Argentina's first Proton Therapy Centre. The unique spirit and warmth of the host city, combined with the groundbreaking scientific agenda, created an inspiring environment for professional growth and international exchange.

Participating in this prestigious event was an enriching and transformative experience. I returned from Buenos Aires not only inspired and energized but also deeply motivated to continue contributing to the advancement of particle radiotherapy. My active engagement in the scientific program allowed me to gain valuable experience in presenting cutting-edge research, moderating a scientific session, and fostering meaningful connections across disciplines.

I had the honor of presenting our latest research in a plenary session focused on brain toxicity following proton irradiation. My talk introduced the use of stem-cell-derived brain organoids as a model system to study radiation-induced contrast-enhanced lesions. I highlighted potential underlying mechanisms and signaling pathways that may contribute to these effects, drawing significant interest from both clinical and scientific communities.

Additionally, I presented a poster titled "Optimizing 12C-ion radiotherapy for brain tumors: Single-dose vs. hypofractionated treatment in human brain organoids", which was selected for a short oral presentation. The research was well received by an interdisciplinary audience of physicists, biologists, and clinicians. Our findings not only mirrored clinical observations but also provided critical insight into the biological underpinnings of contrast-enhanced lesions following radiotherapy. Importantly, the data suggested potential countermeasures and strategies for optimal treatment planning. The strong endorsement of organoid-based research throughout the meeting further emphasized the importance of our work and its alignment with future directions in the field.

I was privileged to serve as a moderator for a session discussing the comparative advantages of particle therapy over conventional X-ray irradiation. This role enabled me to engage in in-depth discussions with international experts on the challenges and prospects of particle therapy, with a focus on biological effectiveness and personalized treatment approaches.

Beyond the scientific sessions, the conference provided ample opportunities for networking and collaboration. I had the pleasure of connecting with participants from around the world, leading to valuable exchanges of ideas and the formation of new partnerships. Notably, I received an invitation to expand our existing collaboration with MD Anderson Cancer Center in Texas and was offered the exciting opportunity to spend a research year at the prestigious Mayo Clinic in Florida next year.

I am profoundly grateful to the German Stem Cell Network (GSCN) for the travel award that made my participation possible. This support represents more than just financial assistance; it is a meaningful recognition of my contributions to the field. Attending the PTCOG Conference was not only essential for my current work but also instrumental in shaping the future trajectory

of my scientific career. Thank you for enabling me to pursue my mission of advancing knowledge and innovation in particle radiotherapy.

Sincerely yours,

Tamara Bender