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Chemical Networking:
Building Bridges Across the Pacific

Chemistry for Development of Theranostic Radiopharmaceuticals, Symposium #11

Corresponding Symposium Organizer: Dr. D. Scott Wilbur (US)

Co-Organizers: Dr. Michael Adam (CA), Dr. Yasushi Arano (JP), Dr. Paul Donnelly (AU),

Dr. Jae Min Jeong (KR), Dr. Xianzhong Zhang (CN)

This symposium will cover all aspects of the chemistry associated with development of theranostic radiopharmaceuticals. Theranostics radiopharmaceuticals have combined capability of diagnostic imaging and radionuclide treatment in a single agent. By combining imaging with therapy, treatments can be tailored to a specific patient. Patient-specific treatments can be more effective than broadly applied therapeutics, as they focus on the pharmacology relative to that patient and characteristics of his/her disease. In the simplest form, a theranostic radiopharmaceutical may contain a disease-targeting agent coupled with a single radionuclide that has emissions for both imaging and therapy. However, in more sophisticated forms, a theranostic radiopharmaceutical may be multifunctional and multimodal in nature. Multifunctional theranostic agents can have chemical moieties that: (a) target diseased tissue, (b) provide imaging capabilities (radioactive and/or photonics or contrast) to determine disease targeting, pharmacokinetics and biodistribution, and (c) deliver particle-emitting radionuclides for therapy, alone or in combination with chemotherapy agents. The symposium will highlight advances made in; (1) theranostic radionuclide preparation/purification; (2) chemistry of developing multifunctional disease-targeting scaffolds, (3) chemistry of conjugating radionuclide chelating or bonding agents; (4) chemistry of radiolabeling the theranostic agents; and (5) use of biological testing in development of theranostic radiopharmaceuticals.





