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Abstract1...Introduction; 2...Approach to Automation: Considerations on 68Ga Radiolabeling Process; 3...Modules for 68Ga Radiopharmaceuticals; 3.1 Classification and Characteristics of Automated Systems; 3.2 Automation and Regulatory Aspects; 4... Perspectives; References; 3 Post-Processing via Cation Exchange Cartridges: Versatile Options; Abstract; 1...Introduction; 2...The Initial Cation Exchange-Based Post-Purification Concept; 3...Combined Cation and Anion Exchange-Based Post-Processing; 4...Post-Processing Towards Nonaqueous Systems for Labeling Lipophilic Compounds 5...Instant Quantification of Generator 68Ge Breakthrough6... Conclusions; References; 4 68Ga Generator Integrated System: Elution--Purification--Concentration Integration; Abstract; 1... Introduction; 2...Nuclear Characteristics and Radioactive Transformation Equilibrium; 3...68Ge/68Ga Separation and 68Ga Generator; 3.1 Nanocrystalline Ceramic Structure Sorbent Used for Chromatographic 68Ge/68Ga Separation; 3.2 68Ga Generator Setup; 3.3 Generator Operation and Specification; 3.4 68Zn2+ Formation and Its Influence on Coordination Chemistry of 68Ga-Radiolabeling 4...Post-Elution Purification--Concentration of 68Ga Eluate4.1 Salt-Form Cationic Exchange Resin-Based Purification--Concentration Method; 4.2 Automation Process and Setup of 68Ga Radioisotope Generator Integrated System (RADIGIS-68Ga); 4.3 Basic/Acidic 68Ga Eluates and Their Radiolabeling; 4.4 Performance of 68Ga Generator and 68Ga Radioisotope Generator Integrated System; 5...Quality Evaluation Experiments: Quality Control Protocols and Radiolabeling Efficacy Evaluation; 5.1 Quality Evaluation of 68Ga Solution; 5.1.1 Quality Control Procedures
5.1.2 Radiolabeling Efficacy Evaluation Based on Radiolabeling Ligands DOTATOC and DOTATATE with 68Ga Solution5.2 Operation Performance Assessment of Ga-68 Generator Systems; Acknowledgments; References; 5 Purification and Labeling Strategies for 68Ga from 68Ge/68Ga Generator Eluate; Abstract; 1...Introduction; 1.1 History; 1.2 Current State; 1.3 Basic Methods; 1.3.1 Anionic Purification; 1.3.2 Cationic Purification; 1.3.3 Fractional Elution; 2... Combined Cationic--Anionic Purification of 68Ge/68Ga Generator Eluate for Labeling of Fragile Peptides and Proteins; 2.1 Aim; 2.2 Description
2.3 Advantages

Sommario/riassunto

This book is based on contributions presented at the 1st World Congress on Gallium-68 and Peptide Receptor Radionuclide Therapy, which examined recent developments in theranostics – the emerging field of molecular targeting of vectors that can be used for both diagnosis and therapy, when modified accordingly. The focus of this book is on the rapidly developing research into and clinical applications of gallium-68 and other generator-produced PET radionuclides in the personalized diagnosis and treatment of neuroendocrine tumors and other diseases. In addition, new PET radiopharmaceuticals are considered, and the latest ideas and concepts, presented. Theranostics embodies both molecular and personalized medicine. It is at the cutting edge of medicine, and the contents of this volume will be of interest to chemists, physicians, and investigators dealing with generators, PET radiochemistry, molecular imaging, and radionuclide therapy.