

An Automated Radiosynthesis of [⁶⁸Ga]Ga-FAPI-46 for Routine Clinical Use

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Materials

Name	Company	Catalog Number	Comments
0.1 M Hydrochloric acid (HCl) ultra pure	ABX advanced biochemical compound (Radberg, Germany)	HCl-103-G	Used for generator(s) elution
Ammonium acetate	Sigma Aldrich Pty Ltd (NSW, Australia)	A1542-250G	Used to make iTLC mobile phase
C18 SepPak Plus short (360 mg)	Waters	WAT020515	Post-purification silica SPE
Chromolith Performance RP-18 endcapped 100-4.6 monolithic	Merck Pty Ltd (Victoria (Australia)	1021290001	HPLC RP-18 endcapped column, used for HPLC quality control
Dose calibrator	Capintec	CRC-15PET	Used to calibrate and measure ⁶⁸ Ga activity
Dual scan-RAM	LabLogic Limited (VA, USA)	SR-1A	Radio-TLC scanner to analyse the iTLC paper
FAPI-46 precursor (GMP)	ABX advanced biochemical compound (Radberg, Germany)	3601.0000.050	Peptide precursor
Fill ease Sterile vacuum vial (10 mL)	HUAYI isotopes	SVV-10C	Used for sterility and retention samples
Fill ease Sterile vacuum vial (25 mL)	HUAYI isotopes	SVV-25A	Used for final product
Ga ⁶⁸ peptide radiolabelling with generator pre-purification	iPHASE Technologies (Melbourne, Australia)	MSR-120G-(RK-3296)	Reagent set
Ga ⁶⁸ radiolabeling with generator prepurification	iPHASE Technologies (Melbourne, Australia)	MSH-120	Hardware Cassette + ancillaries set
Gas chromatography (GC) system	Agilent technologies (Vic, Australia)	G2630A	Used to measure residual solvent
GS Standard source (Ba ¹³³)	Global Medical Solutions Pty Ltd (Australia)	D-102-19	Used to calibrate the Gamma Spectrometer
GS Standard source (Co ⁶⁰)	Global Medical Solutions Pty Ltd (Australia)	1559-84	Used to calibrate the Gamma Spectrometer
High performance liquid chromatography (HPLC) system	Shimadzu Scientific Instruments (NSW, Australia)	LC-20	HPLC equipment
Hydrophobic air vent needle	Baldwin Medical (Victoria, australia)	1088	Used with final product vial

IGG100	Eckert & Ziegler Isotope Products (Berlin, Germany)	IGG100-65M-NT	68Ge/68Ga generator
5 mL syringe (Injekt luer lock solo syringe)	B Braun (Melsungen, Germany)	4606710V	Polypropylene (PP)/polyethylene (PE) syringes, free of latex, PVC, and silicone oil free syringe used for reagents
iTLC-SG paper	Agilent technologies (Vic, Australia)	SGI0001	Used to for iTLC analysis
LabLogic software (LAURA)	LabLogic Limited (VA, USA)	LAURA software version 6.1	Used to for radio-TLC analysis
L-Ascorbic acid Trace select	Fluka Sigma	05878-100G	Used as a radical scavenger in the reaction mixture
Lichrosolv Acetonitrile (ACN)	Sigma Aldrich Pty Ltd (NSW, Australia)	1.00030.2500	Used to make HPLC organic mobile phase
Lichrosolv Water	Sigma Aldrich Pty Ltd (NSW, Australia)	1.15333.2500	Used to make HPLC aqueous mobile phase
Methanol (MeOH)	Sigma Aldrich Pty Ltd (NSW, Australia)	1060182500	Used to make iTLC mobile phase
Na ⁺ I ⁻ detector	LabLogic Limited (VA, USA)	1"NaI / PMT	Radiodetector used for radio-HPLC
Oasis HLB (30 mg)	Waters (Milford, MA, USA)	WAT094225	Postpurification copolymer SPE
Oasis HLB Plus short (225 mg)	Waters (Milford, MA, USA)	186000132	Postpurification copolymer SPE
pH strips	Thermo Fisher Scientific Australia Tty Ltd	90424	Used to measure product pH
PS detector	LabLogic Limited (VA, USA)	PS plastic/PMT	Radiodetector used for radio-TLC
Safe Lock tube (1.5 mL)	Eppendorf	0030 120.086	Used for quality control samples
(+)-Sodium L-ascorbate	Merck Pty Ltd (Victoria (Australia)	11140-250G	Stabilizer of the final product
Sodium chloride (NaCl) solution (saline)	Pfizer	PS111	0.9%, for injection, USP grade
Sterican 100 Needles	B Braun (Melsungen, Germany)	4667093	Used for final product
Sterile syringe filter (0.22 µm)	Millipore Sigma (Burlington, MA, USA)	SLGSV255F	Millex-GV
Strata SCX (in Hardware cassette kit)	Phenomenex inside hardware kit from iPHASE Technologies (Melbourne, Australia)	MSH-120	Prepurification silica SPE inside Hardware Cassette
Strata X (in Hardware cassette kit)	Phenomenex inside hardware kit from iPHASE Technologies (Melbourne, Australia)	MSH-120	Postpurification silica SPE inside Hardware Cassette
Trace Select Water for trace analysis	Honeywell Riedel-de-Haen	95305-2.5L	Used for reaction mixture and to precondition the prepurification SPE cartridge
Trifluoroacetic acid (TFA)	Sigma Aldrich Pty Ltd (NSW, Australia)	302031-10X1mL	Used to make HPLC aqueous mobile phase
Ultra Fine insulin syringe (0.5 mL)	BD	326769	Used for dispensing quality control samples
Vented filter Cathivex-GV 0.22 µm, low protein binding Durapore PVDF membrane	Merk Millipore (Cork, Ireland)	SLGV02505	Used to filter the final product