

Development of a ^{68}Ga Gallium-Labeled D-Peptide PET Tracer for Imaging Programmed Death-Ligand 1 Expression

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Materials

Name	Company	Catalog Number	Comments
1,4,7,10-tetraazacyclododecane-1,4,7,10-tetraacetic acid (DOTA)	Merck	60239-18-1	^{68}Ga chelation
3,3-diaminobenzidine (DAB) Kit	Sigma-Aldrich	D7304-1SET	Immunohistochemistry
anti-PD-L1 monoclonal antibody	Wuhan Proteintech	17952-1-ap	Immunohistochemistry: primary antibody
BMS202	Selleck	1675203-84-5	Competitive binding assay: inhibitor
BSA	Merck	V900933	Immunofluorescent : blocking
DAPI	Merck	D9542	Immunofluorescent: staining of nucleus
Dichloromethane (DCM)	Merck	34856	Solvent
DIPEA	Merck	3439	Peptide coupling
EDC-HCl	Merck	E6383	Activation of DOTA
FBS	Gibco	10099	Cell culture: supplement
FITC-conjugated anti-human IgG Fc Antibody	Biologend	409310	Immunofluorescent: secondary antibody
FITC-conjugated anti PD-L1 antibody	Biologend	393606	Flow cytometry: direct antibody
HCTU	Energy Chemical	E070004-25g	Peptide coupling
HRP labeled goat anti-rabbit antibody	Servicebio	GB23303	Immunohistochemistry: secondary antibody
Hydroxysuccinimide (NHS)	Merck	130672	Activation of DOTA
MeCN	Merck	PHR1551	Solvent

Morpholine	Merck	8.06127	Fmoc- deprotection
NMP	Merck	8.06072	Solvent
Paraformaldehyde	Merck	30525-89-4	Fixation of tissues
PBS	Gibco	10010023	Cell culture: buffer
Penicillin-streptomycin	Gibco	10378016	Cell culture: supplement
RIA tube	PolyLab	P10301A	As tissue sample container
RPMI-1640 medium	Gibco	11875093	Cell culture: basic medium
Sodium acetate	Merck	1.06264	Salt for buffer
Trypsin-EDTA	Gibco	25200056	Cell culture: dissociation agent
U87MG cell line	Procell Life Science & Technology Co	CL-0238	Cell model
Equipment			
$^{68}\text{Ge}/^{68}\text{Ga}$ generator	Isotope Technologies Munich, ITM	Not applicable	Generation of [^{68}Ga]
Autogamma counter	Perkin Elmer	Wizard2	Detection of radioactivity
Confocal fluorescent microscopy	Keyence		Observation of immunofluorescent results
Flow cytometer	Becton Dickinson, BD	LSRII	Monitoring the PD-L1 positive cells
High-performance liquid chromatography (HPLC)	SHIMAZU	LC-20AT	Purification of DPA peptide
PET scanner	Siemens Medical Solutions	Inveon MultiModality System	PET imaging
Optical microscopy	Nikon	Eclipse E100	Observation of immunohistochemistry results
Solid phase peptide synthesizer	Promega Vac-Man Laboratory Vacuum Manifold	LOT#11101	Synthesis of DPA-DOTA peptide
Software			
ASIPro	Siemens Medical Solutions	Not applicable	Analysis of PET-CT results
FlowJo	Becton Dickinson, BD	FlowJo 7.6.1	Analysis of the flow cytometer results
Inveon Acquisition Workplace (IAW)	Siemens Medical Solutions	Not applicable	Management of PET machine
Prism	Graphpad	Prism 8.0	Analysis of the data