

# Preparation and Characterization of Targeted Microbubbles

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## Materials

Name	Company	Catalog Number	Comments
Amalgamator	Lantheus, Billerica, MA.	Vialmix	ESPE Capmix, Wig-L-Bug or another amalgamator capable of 4300 rpm can be used.
biotin-PEG3400-DSPE	Laysan Bio, Arab, AL.	Biotin-PEG-DSPE-3400	
Bovine Serum Albumin (BSA)	Fisher Scientific, Waltham, MA	BP1600-100 or similar	
Ca-Mg-free PBS	Fisher Scientific, Waltham, MA	14190-144	
Centrifuge with a bucket rotor	IEC/Thermo, Fisher Scientific, Waltham, MA.	NH-SII	Any centrifuge with a bucket rotor
chloroform	Fisher Scientific, Waltham, MA	C297-4	
cyclic (RGDfK) peptide	AnaSpec, Fremont, CA	AS-61111	
Decafluorobutane	F2 Chemicals, Preston UK	CAS 355-25-9	
Dil	Sigma-Aldrich, St. Louis, MO.	468495-100MG	
DIPEA	Sigma-Aldrich, St. Louis, MO.	387649	
Disposable UV cuvette, 1.5 ml	BrandTech, Essex, CT.	759150	
DMSO	Sigma-Aldrich, St. Louis, MO.	276855	
Dry block heater, high temperature	Techne Cole Palmer, Staffordshire UK	DB-3A	
DSPC	Lipoid, Ludwigshafen, Germany	LIPOID PC 18:0/18:0	
Fluorescence microplate reader	Molecular Devices, San Jose, CA.	Spectramax Gemini XS	No longer available, superceded by Gemini XPS; any fluorescence plate reader with red dye detection capability will work
Microscope with fluorescence epillumination.	Leica	Laborlux 11	No longer available; any fluorescence microscope is sufficient; high-sensitivity video camera is required for image stream collection
NHS-PEG3400-DSPE	NOF-America, White Plains, NY.	SUNBRIGHT DSPE-034GS	Some of the alternative manufacturers provide material that is mostly, or completely, hydrolyzed on arrival
Ninhydrin spray for TLC plates	BVDA, Haarlem, The Netherlands	AS-72177	

Normal saline irrigation solution (0.9% NaCl)	Baxter, Deerfield IL.	2F7124	
Parallel plate flow chamber, for 35mm Corning Petri Dish	Glycotech, Gaithersburg, MD.	31-001	May only work with Corning Petri dishes, but not necessarily with other makers, due to different dimensions
Particle sizing system	Beckman Coulter, Hialeah, FL	Multisizer 3	No longer available, superceded by Multisizer 4, with similar electrozone sensing principle. Alternatively, optical methods, e.g., Accusizer, can be used.
PEG 6000 monostearate	Kessco Stepan, Joliet, IL.	CAS 9004-99-3	
Petri Dishes, 35 mm diameter, 10 mm tall	Corning, Corning, NY.	430165	
Plastic coverslips, 22x22mm	Cardinal Health, McGaw Park, IL.	M6100	
Propylene glycol	Sigma-Aldrich, St. Louis, MO.	P4347	
Recombinant murine alphavbeta3, carrier-free	R&D Systems, Minneapolis, MN.	7889-AV-050	
Rubber stoppers, 13mm	Kimble-Chase, Vineland, NJ	W017900	
Serum vials, 2 ml, 13mm	Kimble-Chase, Vineland, NJ	223683	
Silica TLC Plates, F254	Analtech, Newark, DE	P02521	
Sodium tetraborate	Sigma-Aldrich, St. Louis, MO.	S9640	
Streptavidin	AnaSpec, Fremont, CA	AS-72177	
Syringe pump, infuse/withdraw option	Harvard Apparatus, Holliston, MA	PHD2000, 70-2001	
Ultrasound imaging system with contrast-specific mode.	Siemens/Acuson, Mountain View CA	Sequoia c512, 15L8 probe	Old generation Sequoia is out of production for more than a decade. Available as used equipment. CPS mode has to be unlocked for the 15L8 transducer.
UV Spectrophotometer	Beckman, Brea, CA.	DU640	No longer available, may be replaced with any 260 nm ultraviolet-capable unit