References on the Use of LACTEL® Polymers for Nanoparticles

L00354 Dutta, D, Salifu M, Sirianni R, Stabenfeldt S. Tailoring sub-micron PLGA particle release profiles via centrifugal fractioning. J Biomed Mater Res Part A 2016; 104(A):688-696. >>> Poly(DL-lactide-co-glycolide) ester terminated; 50:50; IV 0.55-0.75 dL/g; Drug delivery (nanoparticles, in vitro, protein); particles were synthesized via a W/O/W emulsion technique; centrifugal fractioning used to control population distribution of particles.

L00355 Gwak SJ, Yun Y, Yoon DH, Kim KN, Ha Y. Therapeutic Use of 3B-[N-(N',N'-Dimethylaminoethane) Carbamoyl] Cholesterol-Modified PLGA Nanospheres as Gene Delivery Vehicles for Spinal Cord Injury. PloS one 2016; 11(1):1-14. >>> Poly(DL-lactide-co-glycolide); MW 66 kDa; Drug delivery (nanoparticles, pDNA); Rat; prepared using a double emulsion-solvent evaporation method; spinal cord injury; testing done on drug release, cytotoxicity, cellular uptake, and transfection.

L00352 Rahman S, Mahoney C, Sankar J, Marra K, Bhattarai N. Synthesis and characterization of magnesium gluconate containedpoly(lactic-co-glycolic acid)/chitosan microspheres. Materials Science and Engineering B 2016; 203:59-66. >>> Poly(DL-lactide-co-glycolide) acid terminated; 50:50; IV 0.15-0.25 dL/g; Drug delivery (nanoparticles, magnesium gluconate dihydrate); microspheres were fabricated by utilizing the double emulsion solvent evaporation technique with some modifications; "Cytotoxicity levels did not surpass the 15% cytotoxicity marker...which indicates sufficient biocompatibility" (pg. 64).

L00332 Petro M, Jaffer H, Yang J, Kabu S, Morris VB, Labhasetwar V. Tissue plasminogen activator followed by antioxidant-loaded nanoparticle delivery promotes activation/mobilization of progenitor cells in infarcted rat brain. Biomaterials 2016; 81:169-180. >>> Poly(DL-lactide-co-glycolide); 50:50; IV 0.76-0.94 dL/g; Drug delivery (nanoparticles, superoxide dismutase, catalase); rat (male Sprague-Dawley); double-emulsion solvent-evaporation method used for nanoparticle production; "delivery of nano-CAT/SOD at the time of reperfusion effectively protects neuronal cells" (pg. 178).

L00342 Adjei IM, Sharma B, Peetla C, Labhasetwar V. Inhibition of bone loss with surface-modulated, drug-loaded nanoparticles in an intraosseous model of prostate cancer. Journal of Controlled Release 2016; 232:83-92. >>> Poly(DL-lactide-co-glycolide); 50:50; IV 0.26–0.54 dL/g; Drug delivery (nanoparticles, paclitaxel, NIR dye SDB5700); mice (male, athymic, nude); Nanoparticles were prepared by a single oil-in-water emulsion solvent evaporation method.

L00326 Vilos C, Velasquez LA, Rodas PI, Zepeda K, Bong SJ, Herrera N et al. Preclinical Development and In Vivo Efficacy of Ceftiofur-PLGA Microparticles. PloS one 2015; 10(4):U325-U343. >>> Poly(DL-lactide-co-glycolide) acid-terminated; 50:50; IV 0.26-0.54 dL/g; Drug delivery (nanoparticles, ceftiofur); Rat (Sprague-Dawley); Nanoparticles were prepared by double-emulsion method; sustained release profile of drug for 20 days.

L00370 Lopalco A, Ali H, Denora N, Rytting E. Oxcarbazepine-loaded polymeric nanoparticles: development and permeability studies across in vitro models of the blood-brain barrier and human placental trophoblast. International Journal of Nanomedicine 2015; 10:1985-1996. >>> Poly(DL-lactide-co-glycolide); 50:50; IV 0.15-0.25 dL/g; Drug delivery (nanoparticles, oxcarbazepine); prepared at room temperature (22°C-23°C) by a modified solvent displacement method; particle size, size distribution, and zeta potential measurements (in vitro); drug release profile (pg. 1994).

L00324 Wang F, Gao WW, Thamphiwatana S, Luk BT, Angsantikul P, Zhang QZ et al. Hydrogel Retaining Toxin-Absorbing Nanosponges for Local Treatment of Methicillin-Resistant Staphylococcus aureus Infection. Advanced Materials 2015; 27:3437-3443. >>> Poly(DL-lactide-co-glycolide) ester terminated; 50:50; IV 0.67 dL/g; Drug delivery (nanoparticles, nanosponge, a-toxin); mice; produced through nanoprecipitation in acetone.

L00318 Zhan X, Shen H. Programming the composition of polymer blend particles for controlled immunity towards individual protein antigens. Vaccine 2015; 33:2719-2726. >>> Poly(DL-lactide-co-glycolide); 50:50; IV 0.55-0.75 dL/g; Drug delivery (nanoparticles, ovalbumin, Type 2 Herpes Simplex Virus glycoprotein D); C57BL/6 mice;

L00319 Zamani M, Prabhakaran MP, Thian ES, Ramakrishna S. Controlled delivery of stromal derived factor-1alpha from poly lactic-co-glycolic acid core-shell particles to recruit mesenchymal stem cells for cardiac regeneration. Journal of Colloid and Interface Science 2015; 451:144-152. >>> Poly(DL-lactide-co-glycolide); 50:50; MW 31.3-57.6 kDa; Drug delivery (nanoparticles, stromal derived factor-1a); Coaxial electrospraying; sterilized using UV radiation.

L00369 Puntel A, Maeda A, Golczak M, Gao S, Yu G, Palczewski K et al. Prolonged prevention of retinal degeneration with retinylamine loaded nanoparticles. Biomaterials 2015; 44:103-110. >>> Poly(L-lactide); MW 91-130 kDa; Drug delivery (nanoparticles, retinylamine); Mice (C57BL/6J); nanoparticles containing retinylamine were fabricated by a single emulsion technique; prevention of retinal degeneration.

L00358 Hu Y, Zhao ZM, Ehrich M, Fuhrman K, Zhang CM. In vitro controlled release of antigen in dendritic cells using pH-sensitive liposome-polymeric hybrid nanoparticles. Polymer 2015; 80:171-179. >>> Poly(DL-lactide-co-glycolide); 50:50; Drug delivery (nanoparticles, antigen); nanoparticles prepared using a double emulsion solvent evaporation method with modifications.

L00357 Hu CMJ, Fang RH, Wang KC, Luk BT, Thamphiwatana S, Dehaini D et al. Nanoparticle biointerfacing by platelet membrane cloaking. NATURE 2015; 526:118-121. >>> Poly(DL-lactide-co-glycolide) acid terminated; 50:50; IV 0.67 dL/g; Drug delivery (nanoparticles, docetaxel); rat (male, Sprague-Dawley); particles prepared in a nanoprecipitation process.

L00359 Hu Y, Hoerle R, Ehrich M, Zhang CM. Engineering the lipid layer of lipid-PLGA hybrid nanoparticles for enhanced in vitro cellular uptake and improved stability. Acta Biomaterialia 2015; 28:149-159. >>> Poly(DL-lactide-co-glycolide); 50:50; Drug delivery (nanoparticles, bovine serum albumin); nanoparticles prepared by double emulsion solvent evaporation method with modifications.

L00348 Gavrilov K, Seo YE, Tietjen GT, Cui JJ, Cheng CJ, Saltzman WM. Enhancing potency of siRNA targeting fusion genes by optimization outside of target sequence. PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA 2015; 112:E6597-E6605. >>> Poly(DL-lactide-co-glycolide) ester terminated; 50:50; IV 0.55-0.75 dL/g; Drug delivery (nanoparticles, siRNA); nanoparticles were prepared using a modified water-in-oil-in-water double-emulsion solvent evaporation technique.

L00367 Phongpradist R, Chaiyana W, Anuchapreeda S. Curcumin-loaded multi-valent ligands conjugated-nanoparticles for anti-inflammatory activity. International Journal of Pharmacy and Pharmaceutical Sciences 2015; 7(4):203-208. >>> Poly(DL-lactide-co-glycolide) acid terminated; 50:50; IV 0.67 dL/g - MW 90 kDa; Drug delivery (nanoparticles, curcumin); formulated by solvent displacement method; cIBR, cLABL peptides conjugated on surface of PLGA nanoparticles using carbodiimide reaction; in vitro cytotoxicity testing (pg. 206).

L00142 Devalliere J, Chang WG, Andrejecsk JW, Abrahimi P, Cheng CJ, Jane-wit D et al. Sustained delivery of proangiogenic microRNA-132 by nanoparticle transfection improves

endothelial cell transplantation. The FASEB Journal 2014; 28(2):908-922. >>> Poly(DL-lactide-*co*-glycolide); 50:50; IV 0.55-0.75 dL/g; drug delivery (nanoparticles, miRNA, siRNA, coumarin 6); "nanoparticles composed of PLGA, a biodegradable and nontoxic polymer, have been shown to be efficient and chemically modifiable carriers of siRNA and miRNA." (p. 909); siRNAs targeted survivin, caveolin 1, clathrin and AP2M1; ester terminated.

L00252 Martin DT, Steinbach JM, Liu J, Shimizu S, Kaimakliotis HZ, Wheeler MA et al. Surface modified nanoparticles enhance transurothelial penetration and delivery of survivin siRNA in treating bladder cancer. Molecular Cancer Therapeutics 2014; 13:71-81. >>> Poly(DL-lactide-co-glycolide); drug delivery (nanoparticles, penatratin, chitosan, coumarin-6, survivin siRNA); mouse; targeted delivery (bladder; tumor).

L00266 Adjei IM, Peetla C, Labhasetwar V. Heterogeneity in nanoparticles influences biodistribution and targeting. Nanomedicine 2014; 9(2):267-278. >>> Poly(DL-lactide-co-glycolide); 50:50; IV 0.15-0.25 dL/g; drug delivery (nanoparticles, cucurbitacin I); two methods of nanoparticle preparation compared: emulsion solvent evaporation vs. nanoprecipitation.

L00261 Rescignano N, Fortunati E, Montesano S, Emiliani C, Kenny JM, Martino S et al. PVA bio-nanocomposites: a new take-off using cellulose nanocrystals and PLGA nanoparticles. Carbohydrate polymers 2014; 99:47-58. >>> Poly(DL-lactide-co-glycolide); 50:50; IV 0.95-1.20 dL/g; drug delivery (nanoparticles, bovine serum albumin fluorescein isothiocynate conjugate);

L00168 Almeria B, Gomez A. Electrospray synthesis of monodisperse polymer particles in a broad (60nm-2um) diameter range: guiding principles and formulation recipes. Journal of Colloid and Interface Science 2014; 417:121-130. >>> Poly(DL-lactide-co-glycolide) ester terminated; 50:50; MW 11-136 kDa; drug delivery (nanoparticles); electrospraying.

L00197 Psimadas D, Baldi G, Comes Franchini M, Locatelli E, Innocenti C, Sangregorio C et al. Comparison of the magnetic, radiolabeling, hyperthermic and biodistribution properties of hybrid nanoparticles bearing CoFe2O4 and Fe3O4 metal cores. Nanotechnology 2014; 25:1-9. >>> Poly(DL-lactide-co-glycolide); 75:25; MW 76-120 kDa; drug delivery (metal oxide nanoparticles); "Hybrid CoFe2O4 NPs were prepared by adding an acetone solution of... PLGA... at a concentration of 0.1% and CoFe2O4-EHO (0.04%) to a water solution containing 0.1% w/w of BSA...".

L00247 Luk BT, Hu CMJ, Fang RH, Dehaini D, Carpenter C, Gao W et al. Interfacial interactions between natural RBC membranes and synthetic polymeric nanoparticles. Nanoscale 2014; 6:2730-2737. >>> Poly(DL-lactide-co-glycolide); 50:50; IV 0.67 dL/g; drug delivery (nanoparticles); red blood cell membrane-cloaked nanoparticle platform.

L00237 Kulkarni SS, Kompella UB. Nanoparticles for Drug and Gene Delivery in Treating Diseases of the Eye. Methods in Pharmacology and Toxicology 2014;291-316. >>> Poly(L-lactide); IV 0.9-1.2 dL/g in chloroform (PLA); drug delivery (nanoparticles); detailed steps for nanoparticle preparation by single emulsion method for hydrophobic drugs and double emulsion method for hydrophilic drugs; also used 50:50 PLGA from another manufacturer; detailed methods for nanoparticle characterization and drug release analysis.

L00273 Alshamsan A. Nanoprecipitation is more efficient than emulsion solvent evaporation method to encapsulate cucurbitacin I in PLGA nanoparticles. Saudi Pharmaceutical Journal 2014; 22:219-222. >>> Poly(DL-lactide-co-glycolide); 50:50; IV 0.15-0.25 dL/g; drug delivery (cucurbitacin, nanoparticles); 50:50; examination of various drug loading techniques: single emulsion, double emulsion, nanoprecipitation.

L00275 Deng Y, Saucier-Sawyer JK, Hoimes CJ, Zhang J, Seo YE, Andrejecsk JW et al. The effect of hyperbranched polyglycerol coatings on drug delivery using degradable polymer nanoparticles. Biomaterials 2014; 35(24):6595-6602. >>> Poly(L-lactide); MW 20.2 kDa; drug delivery (nanoparticles, fluorescent dye, camptothecin); mice; biodistribution evaluated after IV injection in mice with Lewis lung carcinoma tumors; "no significant in vivo toxicity was observed for all formulations" (p. 6599).

L00281 Gadde S, Even-Or O, Kamaly N, Hasija A, Gagnon PG, Adusumilli KH et al. Development of Therapeutic Polymeric Nanoparticles for the Resolution of Inflammation. Advanced healthcare materials 2014. >>> Poly(DL-lactide); Poly(DL-lactide-co-glycolide); 50:50; IV 0.55-0.75 and 0.15-0.25 dL/g (PLGA); drug delivery (nanoparticles, LXR agonist GW3965); mice (C57Bl6); nanoparticles synthesized by nanoprecipitation process; in vivo evaluation in model of peritonitis.

L00269 Arora S, Swaminathan SK, Kirtane A, Srivastava SK, Bhardwaj A, Singh S et al. Synthesis, characterization, and evaluation of poly (D, L-lactide-co-glycolide)-based nanoformulation of miRNA-150: potential implications for pancreatic cancer therapy. International Journal of Nanomedicine 2014; 9:2933-2942. >>> Poly(DL-lactide-co-glycolide); 50:50; MW 40 kDa; drug delivery (nanoparticles, miRNA); in vitro (pancreatic cell culture); nanoparticles prepared using double emulsion solvent evaporation method.

L00315 Ayre A, Lalitha KG, Ruckmani K, Khutle N, Pawar H, Dand N et al. **ICH Q8 Guidelines in Practice: Spray Drying Process Optimization by 23 Factorial Design for the Production of Famotidine Nanoparticles** . Pharmaceutical Nanotechnology 2014; 2:138-148. >>> Poly(DL-lactide-co-glycolide); 50:50; MW 11.1 kDa; Drug delivery (nanoparticles, famotidine); authors achieved 52% drug loading and 76.64% encapsulation efficiency (p. 143).

L00299 Sadhukha T, Prabha S. Encapsulation in Nanoparticles Improves Anti-cancer Efficacy of Carboplatin. AAPS PharmSciTech 2014; 15(4):1029-1038. >>> Poly(DL-lactide-co-glycolide) ester terminated; 50:50; IV 0.95-1.2 dL/g; drug delivery (nanoparticles: carboplatin); nanoparticles prepared by modified double emulsion-solvent evaporation method. The authors stated "Despite its hydrophilic nature, carboplatin was successfully
loaded into PLGAnanoparticles. The release of carboplatinwas sustained over 7 days, with no initial burst." (p. 1037).

L00236 Deok Kong S, Sartor M, Jack Hu CM, Zhang W, Zhang L, Jin S. Magnetic field activated lipid–polymer hybrid nanoparticles for stimuli-responsive drug release. Acta Biomaterialia 2013; 9(3):5447-5452. >>> Poly(DL-lactide-co-glycolide); drug delivery (stimuli-responsive nanoparticles, camptothecin);

L00303 Valencia PM, Pridgen EM, Perea B, Gadde S, Sweeney C, Kantoff PW et al. Synergistic cytotoxicity of irinotecan and cisplatin in dual-drug targeted polymeric nanoparticles. Nanomedicine 2013; 8(5):687-698. >>> Poly(DL-lactide-co-glycolide)-COOH; 50:50; IV 0.67 dL/g; MW 45 kDa; drug delivery (nanoparticles; cisplatin, irinotecan); nanoparticles prepared by nanoprecipitation using microfluidic devices.

L00207 Youm I, Younan BBC. Validated Reverse-Phase High-Performance Liquid Chromatography for Quantification of Furosemide in Tablets and Nanoparticles. Journal of Analytical Methods in Chemistry 2013; 2013:1-9. >>> Poly(DL-lactide-co-glycolide); 50:50; IV 0.4, 0.58, 0.8 dL/g; drug delivery (nanoparticles, furosemide);

L00199 Chen HC, Zhan X, Shen H. Selectively targeting the toll-like receptor 9 (TLR9) - IRF 7 signaling pathway by polymer blend particles. Biomaterials 2013; 34:6464-6472. >>> Poly(DL-lactide-co-glycolide); 50:50; IV 0.65 dL/g; drug delivery (nanoparticles, CpG

oligonucleotides); "The blend particles were fabricated by using the double emulsion method." pg 6465.

L00212 Kong SD, Sartor M, Hu CMJ, Zhang W, Zhang L, Jin S. Magnetic field activated lipid–polymer hybrid nanoparticles for stimuli-responsive drug release. Acta Biomaterialia 2013; 2013(9):5447-5452. >>> Poly(DL-lactide-co-glycolide); drug delivery (nanoparticles, camptothecin, iron oxide); up to 1 month;

L00209 Zou P, Stern ST, Sun D. PLGA/Liposome Hybrid Nanoparticles for Short-Chain Ceramide Delivery. Pharm Res 2013; 31(3):684-693. >>> Poly(DL-lactide-co-glycolide) acid terminated; IV 0.65 dL/g - MW 30 kDa in THF; drug delivery (nanoparticles, ceramide); ceramide-loaded PLGA nanoparticles were prepared using a nanoprecipitation method.

L00260 Ragheb RR, Kim D, Bandyopadhyay A, Chahboune H, Bulutoglu B, Ezaldein H et al. Induced clustered nanoconfinement of superparamagnetic iron oxide in biodegradable nanoparticles enhances transverse relaxivity for targeted theranostics. Magnetic Resonance in Medicine 2013; 70(6):1748-1760. >>> Poly(DL-lactide-co-glycolide); 50:50; IV 0.59 dL/g; drug delivery (nanoparticles, superparamagnetic iron oxide, coumarin-6, avidin); mice; biodistribution analyzed.

L00262 Rescignano N, Tarpani L, Tiribuzi R, Montesano S, Martino S, Latterini L et al. Protein encapsulation in biodegradable polymeric nanoparticles: morphology, fluorescence behaviour and stem cell uptake. Macromolecular bioscience 2013; 13(9):1204-1212. >>> Poly(DL-lactide-co-glycolide) ester terminated; 50:50; IV 0.95-1.2 dL/g - MW 91.6-120 kDa; drug delivery (nanoparticles, bovine serum albumin fluorescein isothiocynate conjugate);

L00263 Rinaldi S, Fortunati E, Taddei M, Kenny JM, Armentano I, Latterini L. Integrated PLGA–Ag nanocomposite systems to control the degradation rate and antibacterial properties. Journal of Applied Polymer Science 2013; 130(2):1185-1193. >>> Poly(DL-lactide-co-glycolide); 50:50; IV 0.95-1.20 dL/g; biomaterial (composite nanoparticles, silver); film cast.

L00258 Qiu Y, Palankar R, Echeverria M, Medvedev N, Moya SE, Delcea M. Design of hybrid multimodal poly (lactic-co-glycolic acid) polymer nanoparticles for neutrophil labeling, imaging and tracking. Nanoscale 2013; 5(24):12624-12632. >>> Poly(DL-lactide-co-glycolide); 50:50; drug delivery (nanoparticles, quantum dots, superparamagnetic iron oxide);

L00291 McCall RL, Sirianni RW. PLGA Nanoparticles Formed by Single-or Double-emulsion with Vitamin E-TPGS. JoVE (Journal of Visualized Experiments) 2013;(82):e51015. >>> Poly(DL-lactide-co-glycolide); 50:50; IV 0.55-0.75 dL/g; drug delivery (nanoparticles); video demonstration of nanoparticle preparation; LACTEL cited in materials section which appears in online version of paper: http://www.jove.com/video/51015/plga-nanoparticles-formed-single-or-double-emulsion-with-vitamin-e.

L00250 Marrache S, Choi JH, Tundup S, Zaver D, Harn DA, Dhar S. Immune stimulating photoactive hybrid nanoparticles for metastatic breast cancer. Integrative Biology 2013; 5(1):215-223. >>> Poly(DL-lactide-co-glycolide)-COOH; IV 0.18 dL/g; drug delivery (nanoparticles, zinc phthalocyanine, DNA);

L00257 Pridgen EM, Alexis F, Kuo TT, Levy-Nissenbaum E, Karnik R, Blumberg RS et al. Transepithelial Transport of Fc-Targeted Nanoparticles by the Neonatal Fc Receptor for Oral Delivery. Science translational medicine 2013; 5(213):213ra167. >>> Poly(L-lactide) acid terminated; Poly(DL-lactide-co-glycolide) acid terminated; IV 0.50 dL/g (PLA); IV 0.20 dL/g (PLGA); drug delivery (nanoparticles, insulin); mice;

L00157 Gullotti E, Park J, Yeo Y. Polydopamine-Based Surface Modification for the Development of Peritumorally Activatable Nanoparticles. Pharmaceutical Research 2013; 30(8):1956-1967. >>> Poly(DL-lactide-co-glycolide) acid terminated; 50:50; IV 0.15-0.25 dL/g - MW 4.2 kDa; drug delivery (nanoparticles, polydopamine, TAT protein, fluoresceinamine, paclitaxel);

L00160 Chaowanachan T, Krogstad E, Ball C, Woodrow KA. Drug Synergy of Tenofovir and Nanoparticle-Based Antiretrovirals for HIV Prophylaxis. PloS one 2013; 8(4):e61416. >>> Poly(DL-lactide-co-glycolide) ester terminated; 50:50; MW ~30 kDa; drug delivery (nanoparticles, efavirenz); "NP-EFV had a particle size of approximately 200 nm with low polydispersity (0.08)"; "EFV was dissolved in dichloromethane (DCM) containing 1.5% PLGA".

L00175 Stojanovic Z, Otonicar M, Lee J, Stevanovic MM, Hwang MP, Lee KH et al. The solvothermal synthesis of magnetic iron oxide nanocrystals and the preparation of hybrid poly(l-lactide)–polyethyleneimine magnetic particles. Colloids and Surfaces B: Biointerfaces 2013; 109:236-243. >>> Poly(L-lactide); MW 160 kDa in chloroform; drug delivery (nanoparticles, genes/gene transfection);

L00150 Fontana CR, Lerman MA, Patel N, Grecco C, de Souza Costa CA, Amiji MM et al. Safety assessment of oral photodynamic therapy in rats. Lasers in medical science 2013; 28:479-486. >>> Poly(DL-lactide-co-glycolide); 50:50; MW 12 kDa; drug delivery (nanoparticles, methylene blue); rat; nanoparticles produced by solvent displacement procedure.

L00136 Cui Y, Xu Q, Chow PK-H, Wang D, Wang CH. Transferrin-conjugated magnetic silica PLGA nanoparticles loaded with doxorubicin and paclitaxel for brain glioma treatment. Biomaterials 2013; 34(33):8511-8520. >>> Poly(DL-lactide-*co*-glycolide); 50:50; IV 0.24-0.54 dL/g in HFIP; drug delivery (nanoparticles, doxorubicin, paclitaxel); drug loaded nanoparticles were injected IV into tumor bearing mice; in vivo biodistribution (p. 8516).

L00144 Ditto AJ, Reho JJ, Shah KN, Smolen JA, Holda JH, Ramirez RJ et al. In Vivo Gene Delivery with l-Tyrosine Polyphosphate Nanoparticles. Molecular Pharmaceutics 2013; 10(5):1836-1844. >>> Poly(DL-lactide-*co*-glycolide); 50:50; IV 0.95-1.20 dL/g; drug delivery (nanoparticles); rat; control nanoparticles; targeted delivery (uterine myometrium).

L00147 Elizarova OS, Balaban'yan VY, Shipulo EV, Maksimenko OO, Vanchugova LV, Litvinova SA et al. Efficacy of a new colloidal form of low-sialylated polylactide-based erythropoietin in experimental hemorrhagic stroke in rats. Pharmaceutical Chemistry Journal 2013; 46(10):626-629. >>> Poly(L-lactide); IV 0.34 dL/g, IV 0.68 dL/g; drug delivery (nanoparticles);

L00183 Shibata A, McMullen E, Pham A, Belshan M, Sanford B, Zhou Y et al. Polymeric Nanoparticles Containing Combination Antiretroviral Drugs for HIV Type 1 Treatment. AIDS research and human retroviruses 2013; 29(5):746-754. >>> Poly(DL-lactide-co-glycolide); IV 0.59 dL/g in HFIP - MW 52 kDa; drug delivery (nanoparticles, efavirenz, lopinavir/ritonavir); "NP's were prepared using the emulsion-solvent evaporation method." pg 747.

L00182 Schneider J, Jallouk AP, Vasquez D, Thomann R, Forget A, Pino CJ et al. Surface Functionality as a Means to Impact Polymer Nanoparticle Size and Structure. Langmuir 2013; 29:4092-4095. >>> Poly(DL-lactide-co-glycolide); MW 30 kDa in acetone and N-methyl-2-pyrrolidone; drug delivery (nanoparticles); "we demonstrate that through judicious choice of the surface functionalization species, control over both NP size and structure can be established without varying polymer concentration." pg 4092.

L00178 Valencia PM, Pridgen EM, Rhee M, Langer R, Farokhzad OC, Karnik R. Microfluidic Platform for Combinatorial Synthesis and Optimization of Targeted Nanoparticles for Cancer Therapy. ACS nano 2013; 7(12):10671-10680. >>> Poly(DL-lactide-co-glycolide); MW 15 kDa, 45 kDa, 70 kDa; drug delivery (nanoparticles); mice (Balb/c); cancer.

L00191 Chen Y, Yang Z, Liu C, Wang C, Zhao S, Yang J et al. Synthesis, characterization, and evaluation of paclitaxel loaded in six-arm star-shaped poly(lactic-co-glycolic acid). International Journal of Nanomedicine 2013; 8:4315-4326. >>> Poly(DL-lactide-co-glycolide); IV 1.11 dL/g at 30C in chloroform; drug delivery (nanoparticles, paclitaxel); "The most important advantage of 6-s-PLGA (star-shaped) is the high stability of the formed polyplexes." pg 4325.

L00193 Hung SW, Mody H, Marrache S, Bhutia YD, Davis F, Cho JH et al. Pharmacological Reversal of Histone Methylation Presensitizes Pancreatic Cancer Cells to Nucleoside Drugs: In Vitro Optimization and Novel Nanoparticle Delivery Studies. PloS one 2013; 8(8):e71196. >>> Poly(DL-lactide-co-glycolide) ester terminated; IV 0.18 dL/g; drug delivery (nanoparticles, gemcitabine); gemcitabine was emulsified with PLGA-b-PEG-OH in dichloromethane using probe sonication; cancer.

L00115 Korbelik M, Madiyalakan R, Woo T, Haddadi A. Antitumor Efficacy of Photodynamic Therapy Using Novel Nanoformulations of Hypocrellin Photosensitizer SL052. Photochemistry and Photobiology 2012; 88(1):188-193. >>> Poly(DL-lactide-*co*-glycolide); 50:50; IV 0.26-0.54 dL/g in HFIP; drug delivery (nanoparticles, SL052); mice; "PLGA has many advantages such as biodegradability, biocompatibility with a wide range of drugs, suitable biodegradation kinetics and physicochemical properties and ease of processing" p.188; Comparison of nanocarrier systems based on PLGA-NPs and PVP-NPs.

L00211 Das M, Sahoo SK. Folate Decorated Dual Drug Loaded Nanoparticle: Role of Curcumin in Enhancing Therapeutic Potential of Nutlin-3a by Reversing Multidrug Resistance. PloS one 2012; 7(3):1-18. >>> Poly(DL-lactide-co-glycolide); 50:50; IV 0.41 dL/g; drug delivery (nanoparticles, folate); nanoparticles prepared by oil-in-water single emulsion-solvent evaporation technique; cancer.

L00140 Date AA, Shibata A, Goede M, Sanford B, La Bruzzo K, Belshan M et al. Development and evaluation of a thermosensitive vaginal gel containing raltegravir+ efavirenz loaded nanoparticles for HIV prophylaxis. Antiviral Research 2012; 96(3):430-436. >>> Poly(DL-lactide-*co*-glycolide); IV 0.59 dL/g in HFIP - MW 52 kDa; drug delivery (nanoparticles, raltegravir, efavirenz);

L00218 Yang J, Zeng Y, Zhang C, Chen YX, Yang Z, Li Y et al. The prevention of restenosis in vivo with a VEGF gene and paclitaxel co-eluting stent. Biomaterials 2012; 2012(34):1635-1643. >>> Poly(DL-lactide-co-glycolide); 50:50; MW 60 kDa; drug delivery (nanoparticles, VEGF plasmid, paclitaxel); "we have developed a stent coated with bi-layered PLGA nanoparticles... containing VEGF plasmid in the outer layer and paclitaxel in the inner core" pg 1635.

L00216 Behera A, Sahoo SK. Preparation and Evaluation of Glibenclamide-Loaded Biodegradable Nanoparticles. Tropical Journal of Pharmaceutical Research 2012; 11(3):345-350. >>> Poly(DL-lactide-co-glycolide); 50:50; IV 0.41 dL/g; drug delivery (nanoparticles, glibenclamide); "GB-loaded PLGA NPs were successfully prepared by emulsification/solvent evaporation method using varying GB/PLGA ratios." pg 349.

L00213 Steinbach JM, Weller CE, Booth CJ, Saltzman WM. Polymer nanoparticles encapsulating siRNA for treatment of HSV-2 genital infection. Journal of Controlled Release 2012; 162(2012):102-110. >>> Poly(DL-lactide-co-glycolide) acid terminated; IV 0.55-0.75 dL/g in dichloromethane; drug delivery (nanoparticles, siRNA, nectin-1 sense, antisense, UL29.2 sense, antisense); "here we show for the first time, that our NPs formed from FDA-approved PLGA prevent lethal intravaginal infection of HSV-2 in mice." pg 109.

L00230 Kadam RS, Tyagi P, Edelhauser HF, Kompella UB. Influence of choroidal neovascularization and biodegradable polymeric particle size on transscleral sustained delivery of triamcinolone acetonide. International Journal of Pharmaceutics 2012; 434(1):140-147. >>> Poly(L-lactide); IV 0.95-1.20 dL/g; drug delivery (nanoparticles, nanoparticles; triamcinolone

acetonide); rat; targeted delivery (eye: subconjunctival space); nanoparticles prepared by o/w emulsion-solvent evaporation.

L00223 Ma W, Smith T, Bogin V, Zhang Y, Ozkan C, Ozkan M et al. Enhanced presentation of MHC class Ia, Ib and class II-restricted peptides encapsulated in biodegradable nanoparticles: a promising strategy for tumor immunotherapy. Journal of translational medicine 2011; 9(1):34-43. >>> Poly(DL-lactide-co-glycolide); drug delivery (nanoparticles, peptide antigens); peptides used (MART-127-35, gp100209-217\, mSTEAP326-335, murine TCR Vb8.2 chain peptides: B5 (76-101), p42 (42-50)); cancer.

L00195 Acharya S, Sahoo SK. Sustained targeting of Bcr –Abl+ leukemia cells by synergistic action of dual drug loaded nanoparticles and its implication for leukemia therapy. Biomaterials 2011; 32(24):5643-5662. >>> Poly(DL-lactide-co-glycolide); 50:50; IV 0.41dL/g - MW 34 kDa; drug delivery (nanoparticles, paclitaxel, doxorubicin, etoposide, rapamycin, nutilin, curcumin); "Drug loaded PLGA nanoparticles were prepared by oil-in-water (O/W) single emulsion solvent evaporation method..." pg 5644.

L00158 Han H, Peng JR, Chen PC, Gong L, Qiao SS, Wang WZ et al. A novel system of artificial antigen-presenting cells efficiently stimulates Flu peptide-specific cytotoxic T cells in vitro. Biochemical and Biophysical Research Communications 2011; 411(3):530-535. >>> Poly(DL-lactide-co-glycolide); 50:50; IV 0.55-0.75 dL/g - MW 8 kDa; drug delivery (nanoparticles, interleukin-2); microspheres produced by double emulsion water-in-oil-in-water method.

L00229 Zou L, Nair A, Weng H, Tsai YT, Hu Z, Tang L. Intraocular Pressure Changes: An Important Determinant of the Biocompatibility of Intravitreous Implants. PloS one 2011; 6(12):1-9. >>> Poly(L-lactide); MW 137 kDa; drug delivery (nanoparticles); rabbit (Dutch, 4-5 lbs);

L00233 Klepac-Ceraj V, Patel N, Song X, Holewa C, Patel C, Kent R et al. Photodynamic effects of methylene blue–loaded polymeric nanoparticles on dental plaque bacteria. Lasers in surgery and medicine 2011; 43(7):600-606. >>> Poly(DL-lactide-co-glycolide); 50:50; MW 12 kDa; drug delivery (nanoparticles, methylene blue); nanoparticles prepared by solvent displacement method.

L00224 Phipps MC, Clem WC, Catledge SA, Xu Y, Hennessy KM, Thomas V et al. Mesenchymal stem cell responses to bone-mimetic electrospun matrices composed of polycaprolactone, collagen I and nanoparticulate hydroxyapatite. PloS one 2011; 6(2):1-8. >>> Poly(e-caprolactone); MW 110 kDa in HFIP; tissue engineering (scaffold, hydroxyapatite); drug delivery (nanoparticles); electrospinning.

L00225 Yallapu MM, Ebeling MC, Chauhan N, Jaggi M, Chauhan SC. Interaction of curcumin nanoformulations with human plasma proteins and erythrocytes. International Journal of Nanomedicine 2011; 6:2779-2790. >>> Poly(DL-lactide-co-glycolide); 50:50; IV 1.32 dL/g at 30C; drug delivery (nanoparticles, curcumin, dendrimer); "nanoformulation(s) based on polylactic-co-glycolic acid (PLGA), ß-cyclodextrin, cellulose, nanogel, and dendrimers"; cancer.

L00113 Fang RH, Aryal S, Hu CMJ, Zhang L. Quick Synthesis of Lipid – Polymer Hybrid Nanoparticles with Low Polydispersity Using a Single-Step Sonication Method. Langmuir 2010; 26(22):16958-16962. >>> Poly(DL-lactide-*co*-glycolide); IV 0.82 dL/g; drug delivery (nanoparticles); bare PLGA nanoparticles served as a positive control.

L00112 Hu CMJ, Kaushal S, Cao HST, Aryal S, Sartor M, Esener S et al. Half-Antibody Functionalized Lipid – Polymer Hybrid Nanoparticles for Targeted Drug Delivery to Carcinoembryonic Antigen Presenting Pancreatic Cancer Cells. Molecular Pharmaceutics 2010; 7(3):914-920. >>> Poly(DL-lactide-*co*-glycolide); IV 0.16 dL/g; drug delivery (nanoparticles, paclitaxel); in vitro; cancer (pancreatic).

L00114 Chan JM, Valencia PM, Zhang L, Langer R, Farokhzad OC. Polymeric nanoparticles for drug delivery. Methods in Molecular Biology 2010; 624:163-175. >>> Poly(DL-lactide-*co*-glycolide); drug delivery (nanoparticles); Book chapter (chpt 11).

L00055 Cartiera MS, Ferreira EC, Caputo C, Egan ME, Caplan MJ, Saltzman WM. Partial Correction of Cystic Fibrosis Defects with PLGA Nanoparticles Encapsulating Curcumin. Molecular Pharmaceutics 2009; 7(1):86-93. >>> Poly(DL-lactide-*co*-glycolide); 50:50; IV 0.59 dL/g - MW 30-70 kDa; drug delivery (nanoparticles, curcumin); mice (C57/BL6); "Oral administration of PLGA nanoparticles encapsulating curcumin enhances the effects of curcumin therapy in CF mice, as compared to delivery of nonencapsulated curcumin." p. 86; "PLGA is a widely used biodegradable polymer and has been shown to have bioadhesive properties that facilitate its binding with the mucosa of the GI tract p. 92".

L00069 Stevanovi M, Maksin T, Petkovi J, Filipi M, Uskokovi D. An innovative, quick and convenient labeling method for the investigation of pharmacological behavior and the metabolism of poly (DL-lactide-co-glycolide) nanospheres. Nanotechnology 2009; 20:1-12. >>> Poly(DL-lactide-*co*-glycolide); MW 40-50 kDa; drug delivery (nanoparticles); in vitro; "Neither PLGA nanospheres nor PLGA/ascorbic acid 85:15% nanoparticles significantly affected the viability of the HepG2 cells" p. 1.

L00021 Cartiera MS, Johnson KM, Rajendran V, Caplan MJ, Saltzman WM. The uptake and intracellular fate of PLGA nanoparticles in epithelial cells. Biomaterials 2009; 30(14):2790-2798. >>> Poly(DL-lactide-*co*-glycolide); 50:50; IV 0.59 dL/g - MW 30-70 kDa; tissue engineering (nanoparticles); in vitro;

L00041 Demento SL, Eisenbarth SC, Foellmer HG, Platt C, Caplan MJ, Mark Saltzman W et al. Inflammasome-activating nanoparticles as modular systems for optimizing vaccine efficacy. Vaccine 2009; 27(23):3013-3021. >>> Poly(DL-lactide-*co*-glycolide); 50:50; IV 0.59 dL/g; drug delivery (nanoparticles, LPS); mice (C57BL/6, 6-8 weeks old); SC, intranasal, oral.

L00045 Reddy MK, Labhasetwar V. Nanoparticle-mediated delivery of superoxide dismutase to the brain: an effective strategy to reduce ischemia-reperfusion injury. The FASEB Journal 2009; 23(5):1384-1395. >>> Poly(DL-lactide-*co*-glycolide); 50:50; IV 1.32 dL/g; drug delivery (nanoparticles, superoxide-dismutase); rat (Sprague-Dawley, male, 250-300 g); Cerebral ischemia injury model; animals receiving SOD-NPs (10,000 U of SOD/ kg) demonstrated a 65% reduction in infarct volume; the mechanism of efficacy appears to be due to sustained delivery of the encapsulated SOD" p. 1394; targeted delivery (brain).

L00046 Basarkar A, Singh J. Poly (lactide-co-glycolide)-Polymethacrylate Nanoparticles for Intramuscular Delivery of Plasmid Encoding Interleukin-10 to Prevent Autoimmune Diabetes in Mice. Pharmaceutical Research 2009; 26(1):72-81. >>> Poly(DL-lactide-*co*-glycolide); IV 0.17 dL/g - MW 10 kDa; drug delivery (nanoparticles, IL-10 plasmid); mice (male BALB/c mice, 5-6 week old); intramuscular.

L00073 Gu F, Langer R, Farokhzad OC. Formulation/preparation of functionalized nanoparticles for in vivo targeted drug delivery. Methods in molecular biology (Clifton, NJ) 2009; 544(Chapter 37):589-598. >>> Poly(DL-lactide-*co*-glycolide); drug delivery (nanoparticles, docetaxel); mice (nude); PEG was added to PLGA; "The PLGA viscosity can influence the rate of PLGA- *b* -PEG conjugation. For high-viscosity PLGA, dilute PLGA in DCM to 0.1-0.25 g/mL before adding EDC/NHS." p. 597.

L00013 Molavi O, Ma Z, Hamdy S, Lavasanifar A, Samuel J. Immunomodulatory and anticancer effects of intra-tumoral co-delivery of synthetic lipid A adjuvant and STAT3 inhibitor, JSI-124. Immunopharmacology and immunotoxicology 2009; 31(2):214-221. >>> Poly(DL-lactide-*co*-glycolide); 50:50; MW 7 kDa; drug delivery (nanoparticles, ligand, 7-acyl lipid); mice (C57BL/6 male, 6 to 10 weeks old); PLGA-NP delivery of 7-acyl lipid A to DCs reduced the

suppressive effects of Treg cells on T cells in vitro; the average tumor volume in the tumor-bearing mice that received JSI-124 plus 7-acyl lipid A PLGA-NPs combination therapy was found to be significantly lower than that in PBS and monotherapy groups; targeted delivery (tumor).

L00001 Acharya S, Dilnawaz F, Sahoo SK. Targeted epidermal growth factor receptor nanoparticle bioconjugates for breast cancer therapy. Biomaterials 2009; 30(29):5737-5750. >>> Poly(DL-lactide-*co*-glycolide); 50:50; IV 0.41 dL/g - MW 34 kDa; drug delivery (nanoparticles, rapamycin); in vitro; good methods p. 5738 (nanoparticle preparation); therapeutic indication (breast cancer); selective drug delivery; surface coated with AB; 18% of drug was released after 24 hours and 50% after 15 days.

L00148 Woodrow KA, Cu Y, Booth CJ, Saucier-Sawyer JK, Wood MJ, Saltzman WM. Intravaginal gene silencing using biodegradable polymer nanoparticles densely loaded with small-interfering RNA. Nature materials 2009; 8(6):526-533. >>> Poly(DL-lactide-co-glycolide) ester terminated; 50:50; IV 0.55-0.75 dL/g; drug delivery (nanoparticles, siRNA); mice; "We chose to build a delivery system from PLGA because it is already FDA-approved for a variety of clinical applications and has been used safely in humans for several decades." (p. 531); targeted delivery (intravaginal).

L00103 Patel AR, Kulkarni S, Nandekar TD, Vavia PR. Evaluation of alkyl polyglucoside as an alternative surfactant in the preparation of peptide-loaded nanoparticles. Journal of Microencapsulation 2008; 25(8):531-540. >>> Poly(DL-lactide); poly(DL-lactide-*co*-glycolide); 50:50; MW 2 kDa, MW 28.022 kDa; drug delivery (nanoparticles, peptide); rabbit; "PLGA is considered to be relatively less hydrophobic as compared to PLA. Thus, NP preparation using PLA as the polymer requires a higher amount of surfactant as compared to PLGA." p. 536.

L00044 Reddy MK, Wu L, Kou W, Ghorpade A, Labhasetwar V. Superoxide dismutase-loaded PLGA nanoparticles protect cultured human neurons under oxidative stress. Applied Biochemistry and Biotechnology 2008; 151(2):565-577. >>> Poly(DL-lactide-*co*-glycolide); 50:50; MW 23 kDa; drug delivery (nanoparticles, superoxide-dismutase); in vitro; "The neuroprotective effect of SOD-NPs is dose-dependent, with efficacy seen at >100 U SOD, with less significant effects at lower doses" p. 1; studied biocompatibility of PLGA-NPs with human neurons.

L00077 Gu F, Zhang L, Teply BA, Mann N, Wang A, Radovic-Moreno AF et al. Precise engineering of targeted nanoparticles by using self-assembled biointegrated block copolymers. Proceedings of the National Academy of Sciences 2008; 105(7):2586-2591. >>> Poly(DL-lactide-*co*-glycolide); IV 0.67 g/dL in HFIP - MW 100 kDa; drug delivery (nanoparticles, docetaxel); 3 days; drug released at a sustained rate for 3 days; targeted delivery (tumor).

L00071 Hamdy S, Molavi O, Ma Z, Haddadi A, Alshamsan A, Gobti Z et al. Co-delivery of cancer-associated antigen and Toll-like receptor 4 ligand in PLGA nanoparticles induces potent CD8+ T cell-mediated anti-tumor immunity. Vaccine 2008; 26:5046-5057. >>> Poly(DL-lactide-*co*-glycolide); 50:50; MW 7 kDa; drug delivery (nanoparticles); mice (tumor bearing); "In addition to their biocompatibility and biodegradability, PLGA nanoparticles (PLGA-NP) offer great flexibility with respect to the manipulation of physicochemical properties of the polymer and the range of antigens and immunomodulators that they can accommodate." p.5046; cancer research.

L00027 Zhang L, Chan JM, Gu FX, Rhee JW, Wang AZ, Radovic-Moreno AF et al. Self-Assembled Lipid- Polymer Hybrid Nanoparticles: A Robust Drug Delivery Platform. ACS nano 2008; 2(8):1696-1702. >>> Poly(DL-lactide-*co*-glycolide); drug delivery (nanoparticles); in vitro;

L00084 Rao KS, Reddy MK, Horning JL, Labhasetwar V. TAT-conjugated nanoparticles for the CNS delivery of anti-HIV drugs. Biomaterials 2008; 29(33):4429-4438. >>> Poly(L-lactide); IV 0.4 dL/g - MW 40 kDa; drug delivery (nanoparticles); mice; targeted delivery (CNS).

L00028 Townsend SA, Evrony GD, Gu FX, Schulz MP, Brown RH, Langer R. Tetanus toxin C fragment-conjugated nanoparticles for targeted drug delivery to neurons. Biomaterials 2007; 28(34):5176-5184. >>> Poly(DL-lactide-*co*-glycolide); MW 20 k/Da; drug delivery (nanoparticles, tetanus toxin C); in vitro;

L00072 Hamdy S, Haddadi A, Somayaji V, Ruan D, Samuel J. Pharmaceutical analysis of synthetic lipid A-based vaccine adjuvants in poly (D,L-lactic-*co*-glycolic acid) nanoparticle formulations. Journal of pharmaceutical and biomedical analysis 2007; 44(4):914-923. >>> Poly(DL-lactide-*co*-glycolide); 50:50; MW 7 kDa; drug delivery (nanoparticles); cancer research.

L00085 Stevanovic MM, Jordovic B, Uskokovic DP. Preparation and characterization of poly (D, L-lactide-co-glycolide) nanoparticles containing ascorbic acid. Journal of Biomedicine and Biotechnology 2007;(84965):1-8. >>> Poly(DL-lactide-*co*-glycolide); 50:50; MW 40-50 kDa; drug delivery (nanoparticles, ascorbic acid); 4-8 weeks; "DLPLG nanospheres are very efficient mean of transdermal transport of medicaments in the body." p. 1; nanoparticle creation process chart, p. 2; molecular weight of ascorbic acid was 176.13 g/mol.

L00059 Cheng J, Teply BA, Sherifi I, Sung J, Luther G, Gu FX et al. Formulation of functionalized PLGA-PEG nanoparticles for in vivo targeted drug delivery. Biomaterials 2007; 28(5):869-876. >>> Poly(DL-lactide-*co*-glycolide); 50:50; IV 0.20 dL/g in HFIP - MW 17 kDa; drug delivery (nanoparticles); mice (xenograft prostate cancer model); Targeted delivery (tumor).

L00050 Gomez-Lopera SA, Arias JL, Gallardo V, Delgado AV. Colloidal stability of magnetite/poly (lactic acid) core/shell nanoparticles. Langmuir 2006; 22:2816-2821. >>> Poly(DL-lactide); drug delivery (nanoparticles, magnetite, composite colloid shell / core); in vitro; "Experimental investigation on the colloidal stability of suspensions of three kinds of particles, including magnetite, poly(lactic acid) (PLA), and composite core/shell colloids formed by a magnetite core surrounded by a PLA shell".

L00087 Sahoo SK, Labhasetwar V. Enhanced antiproliferative activity of transferrin-conjugated paclitaxel-loaded nanoparticles is mediated via sustained intracellular drug retention. Mol Pharm 2005; 2(5):373-383. >>> Poly(DL-lactide-*co*-glycolide); 50:50; MW 23 kDa; drug delivery (nanoparticles, transferrin-conjugated paclitaxel); in vitro; "The advantage of these NPs is their sustained release property, and since the drug is encapsulated, it is not exposed to the cell membrane associated efflux transporters." p. 374.

L00040 Prabha S, Labhasetwar V. Critical determinants in PLGA/PLA nanoparticle-mediated gene expression. Pharmaceutical Research 2004; 21(2):354-364. >>> Poly(DL-lactide); poly(DL-lactide-*co*-glycolide); 50:50; 75:25; MW 12 kDa, 53 kDa and 143 kDa for 50:50; MW 53 kDa for 75:25 and 50:50; drug delivery (nanoparticles, plasmid DNA); "Nanoparticles formulated using PLGA polymer demonstrated greater gene transfection than those formulated using PLA polymer, and this was attributed to the higher DNA release from PLGA nanoparticles. Higher-molecular-weight PLGA resulted in the formation of nanoparticles with higher DNA loading, which demonstrated higher gene expression than those formulated with lower molecular-weight PLGA." p. 354 polymer characteristics tables on p. 357.