

References on the Use of LACTEL® Absorbable Polymers for Microspheres

L00188 Xia Y, Xu Q, Wang C, Pack DW. Protein Encapsulation in and Release from Monodisperse. *Journal of pharmaceutical sciences* 2014; 102(5):1601-1609. >>> Poly(DL-lactide-co-glycolide); poly(L-lactide); 50:50; MW 4.2 kDa (PLGA); MW 43 kDa, 106 kDa, 192 kDa (PLA); drug delivery (microspheres, BSA); 70-80 days; biodegradable polymer double-wall microspheres (DWMS).

L00163 Acharya AP, Lewis JS, Keselowsky BG. Combinatorial co-encapsulation of hydrophobic molecules in poly (lactide-co-glycolide) microparticles. *Biomaterials* 2013; 34:3422-3430. >>> Poly(DL-lactide-co-glycolide); 50:50; IV 0.55-0.75 dL/g; drug delivery (microspheres, PBS); parallel particle production (PPP) represents a step towards personalized medicine.

L00169 Behera T, Swain P. Alginate–chitosan-PLGA composite microspheres induce both innate and adaptive immune response through parenteral immunization in fish. *Fish & shellfish immunology* 2013; 35(3):785-791. >>> Poly(DL-lactide-co-glycolide); IV 0.8 dL/g - MW 50 kDa; drug delivery (microspheres, alginate, chitosan); fish (*Labeo rohita*, rohu, 50-60 g);

L00198 Bhamidipati M, Sridharan BP, Scurto AM, Detamore MS. Subcritical CO₂ sintering of microspheres of different polymeric materials to fabricate scaffolds for tissue engineering. *Materials Science and Engineering C* 2013; 33:4892-4899. >>> Poly(DL-lactide-co-glycolide); poly(ϵ -caprolactone); 50:50; IV 1.3 dL/g - 42-44 kDa; IV 1.1-1.3 dL/g - 110- 125 kDa; tissue engineering (scaffold); < 3 months; < 24 months; "Uniform PLGA and PCL microspheres were lyophilized for 48 h and stored at 20 °C. A 10% polymer solution for PCL and a 20% polymer solution for PLGA were used to prepare the microspheres."

L00167 Chang PC, Chong LY, Dovban AS, Lim LP, Lim JC, Kuo MY-P et al. Sequential Platelet-Derived Growth Factor–Simvastatin Release Promotes Dentoalveolar Regeneration. *Tissue Engineering Part A* 2013; 20(1-2):356-364. >>> Poly(DL-lactide-co-glycolide); 50:50; MW 31.3-43.5 kDa; drug delivery (microspheres, simvastatin); "resulting solutions were transferred to a coaxial needle (inner channel: PDLLA; outer channel: PLGA)" pg 357.

L00141 DeConde AS, Sidell D, Lee M, Bezouglaia O, Low K, Elashoff D et al. Bone morphogenetic protein–2–impregnated biomimetic scaffolds successfully induce bone healing in a marginal mandibular defect. *The Laryngoscope* 2013; 123:1149-1155. >>> Poly(DL-lactide-co-glycolide); 85:15; IV 0.61 dL/g; tissue engineering (scaffold); rat; disinfected by ETOH immersion; "PLGA is a common synthetic polymer with an established safety record in humans and not considered osteoinductive" (p. 1152).

L00231 Karal-Yilmaz O, Ozkan A, Akgun E, Kukut M, Baysal K, Avsar T et al. Controlled release of imatinib mesylate from PLGA microspheres inhibit craniopharyngioma mediated angiogenesis. *Journal of Materials Science: Materials in Medicine* 2013; 24(1):147-153. >>> Poly(DL-lactide-co-glycolide); 50:50; 75:25; 85:15; IV 0.65 dL/g - MW 25 kDa (average); drug delivery (microspheres; imatinib mesylate); rat; microspheres prepared by water-oil-in-water double emulsion/solvent evaporation; targeted delivery (cornea).

L00235 Ko JY, Choi YJ, Jeong GJ, Im GI. Sulforaphane–PLGA microspheres for the intra-articular treatment of osteoarthritis. *Biomaterials* 2013; 34:5359-5368. >>> Poly(DL-lactide-co-glycolide); 75:25; MW 80 kDa; drug delivery (microspheres, sulforaphane); rat; targeted delivery (knee joint).

L00244 Lemke CD, Geary SM, Joshi VB, Salem AK. Antigen-coated poly alpha-hydroxy acid based microparticles for heterologous prime-boost adenovirus based vaccinations. *Biomaterials* 2013; 34(10):2524-2529. >>> Poly(DL-lactide-co-glycolide); Poly(L-lactide); 50:50 (PLGA); 65:35 acid (PLGA); drug delivery (microparticles, ovalbumin); microspheres produced using oil-in-water single emulsion.

L00248 Lupu-Haber Y, Pinkas O, Boehm S, Scheper T, Kasper C, Machluf M. Functionalized PLGA-doped zirconium oxide ceramics for bone tissue regeneration. *Biomedical microdevices* 2013; 15(6):1055-1066. >>> Poly(DL-lactide-co-glycolide); 50:50; IV 0.26-0.54, 0.55-0.75, 0.95-1.20 dL/g; drug delivery (microspheres, bone morphogenic protein-2);

L00251 Mazzara JM, Balagna MA, Thouless MD, Schwendeman SP. Healing kinetics of microneedle-formed pores in PLGA films. *Journal of Controlled Release* 2013; 171(2):172-177. >>> Poly(DL-lactide-co-glycolide); 50:50; IV 0.61 dL/g in HFIP at 25C - MW 55,300 Da; drug delivery (film); films prepared by spin-coating onto glass slides.

L00186 Wood MD, Gordon T, Kemp SWP, Liu EH, Kim H, Shoichet MS et al. Functional Motor Recovery Is Improved Due to Local Placement of GDNF Microspheres After Delayed Nerve Repair. *Biotechnology and bioengineering* 2013; 110(5):1272-1281. >>> Poly(DL-lactide-co-glycolide); 50:50; IV 0.088 - 0.54 dL/g in dichloromethane/acetone (75%/25%) - MW 5-12.9 kDa; drug delivery (microspheres, GDNF); PLGA microspheres 50/50 were prepared by a W/O/W double emulsion procedure.

L00201 Xia Y, Ribeiro PF, Pack DW. Controlled protein release from monodisperse biodegradable double-wall microspheres of controllable shell thickness. *Journal of Controlled Release* 2013; 172:707-714. >>> Poly(DL-lactide-co-glycolide); Poly(DL-lactide); 50:50; MW 4.2 kDa; MW 43 kDa; drug delivery (microsphere, BSA);

L00202 Xiao W, Fu H, Rahaman MN, Liu Y, Sonny Bal B. Hollow hydroxyapatite microspheres: a novel bioactive and osteoconductive carrier for controlled release of bone morphogenetic protein-2 in bone regeneration. *Acta Biomaterialia* 2013; 9:8374-8383. >>> Poly(DL-lactide-co-glycolide); 50:50; IV 0.17 dL/g in chloroform; drug delivery (microsphere, BMP-2);

L00205 Xu Q, Qin H, Yin Z, Hua J, Pack DW. Coaxial electrohydrodynamic atomization process for production of polymeric composite microspheres. *Chemical Engineering Science* 2013; 104:330-346. >>> Poly(DL-lactide-co-glycolide); Poly(DL-lactide); 50:50; IV 0.61 dL/g in HFIP; IV 0.37 dL/g in chloroform; IV 0.70 dL/g in chloroform; drug delivery (microsphere, doxorubicin); PLGA and PDLLA were individually dissolved in dichloromethane (DCM) to prepare polymer concentrations that ranged from 5% to 20% (w/v).

L00204 Xu Q, Chin SE, Wang CH, Pack DW. Mechanism of drug release from double-walled PDLLA(PLGA) microspheres. *Biomaterials* 2013; 34:3902-3911. >>> Poly(DL-lactide-co-glycolide); poly(lactide); poly(DL-lactide); poly(L-lactide); 50:50; IV 0.61 dL/g in HFIP; IV 0.37 dL/g in chloroform; IV 0.70 dL/g in chloroform; IV 1.05 dL/g in chloroform; drug delivery (microsphere, doxorubicin); 40 days; "Double-walled PLA(PLGA) microspheres consisting of a PLGA core surrounded by a PLA shell were produced by using the established precision particle fabrication (PPF) technique" pg 3903; molecular weight of the shell layer (PDLLA) did not influence the subsequent drug release from the microspheres..." pg 3910.

L00203 Xu Q, Leong J, Chua QY, Chi YT, Chow PKH, Pack DW et al. Combined modality doxorubicin-based chemotherapy and chitosan-mediated p53 gene therapy using double-walled microspheres for treatment of human hepatocellular carcinoma. *Biomaterials* 2013; 34:5149-5162. >>> Poly(DL-lactide-co-glycolide); Poly(L-lactide); 50:50; IV 0.61 dL/g in HFIP; IV 1.05 dL/g in chloroform; drug delivery (microsphere, doxorubicin, chitosan-mediated p53); cancer; gene therapy.

L00206 Yandrapu S, Kompella UB. Development of Sustained-Release Microspheres for the Delivery of SAR 1118, an LFA-1 Antagonist Intended for the Treatment of Vascular Complications of the Eye. *Journal of Ocular Pharmacology and Therapeutics* 2013; 29(2):236-248. >>> Poly(L-lactide); poly(DL-lactide-co-glycolide); 50:50; 75:25; 85:15; IV 0.3-0.5 dL/g; drug delivery (microsphere, SAR 1118); 1, 3, 6 months; SAR 1118 is a lymphocyte function-associated antigen-1 antagonist.

L00161 Hu C, Feng H, Zhu C. Preparation and characterization of rifampicin-PLGA microspheres/sodium alginate in situ gel combination delivery system. *Colloids and Surfaces B: Biointerfaces* 2012; 95:162-169. >>> Poly(DL-lactide-co-glycolide); 50:50; MW 55.3 kDa; drug delivery (microspheres, rifampicin, fluorescent marker); mice, rat; targeted delivery (lung); microspheres prepared using a solvent evaporation method; some microspheres with fluorescent marker in place of drug - in vivo retention evaluated using Kodak imaging system.

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.

L00243 Lei NY, Ma G, Zupekan T, Stark R, Puder M, Dunn JC. Controlled release of vascular endothelial growth factor enhances intestinal adaptation in rats with extensive small intestinal resection. *Surgery* 2011; 150(2):186-190. >>> Poly(DL-lactide-co-glycolide); 85:15; IV 0.61 dL/g in chloroform; drug delivery (microspheres, vascular endothelial growth factor); rat; targeted delivery (small bowel anastomosis), microspheres produced by water-in-oil double-emulsion solvent extraction and evaporation.

L00245 Li Z, Li L, Liu Y, Zhang H, Li X, Luo F et al. Development of interferon alpha-2b microspheres with constant release. *International Journal of Pharmaceutics* 2011; 410(1):48-53. >>> Poly(DL-lactide-co-glycolide); 50:50; MW 10 kDa; drug delivery (interferon alpha-2b); rat; microspheres produced by three methods: solid in oil in oil, water in oil in water, and solid in oil in water.

L00108 Acharya G, Shin CS, Vedantham K, McDermott M, Rish T, Hansen K et al. A study of drug release from homogeneous PLGA microstructures. *Journal of Controlled Release* 2010; 146(2):201-206. >>> Poly(DL-lactide-co-glycolide); 50:50; IV 0.7 dL/g - MW 36 kDa; IV 0.82 dL/g - MW 65 kDa; IV 1.3 dL/g - MW 112 kDa; drug delivery (microspheres, felodipine, risperidone, progesterone, and paclitaxel); in vitro; comparison of release rate vs particle size; release rate graphs p. 204.

L00010 Acharya G, Shin CS, McDermott M, Mishra H, Park H, Kwon IC et al. The hydrogel template method for fabrication of homogeneous nano/microparticles. *Journal of Controlled Release* 2010; 141:314-319. >>> Poly(DL-lactide-co-glycolide); IV 0.7 dL/g - MW 36 kDa; IV 0.82 dL/g - MW 65 kDa; IV 1.3 dL/g - MW 112 kDa; drug delivery (microspheres, felodipine); in vitro; hydrogel template.

L00109 Almeria B, Deng W, Fahmy TM, Gomez A. Controlling the morphology of electro-spray-generated PLGA microparticles for drug delivery. *Journal of Colloid and Interface Science* 2010; 343(1):125-133. >>> Poly(DL-lactide-co-glycolide); 50:50; IV 0.55 - 0.75 dL/g - MW 53.8 kDa in TFE; drug delivery (microspheres); electro-spray drying.

L00111 Liu G, Miao X, Fan W, Crawford R, Xiao Y. Porous PLGA microspheres effectively loaded with BSA protein by electro-spraying combined with phase separation in liquid nitrogen. *Journal of Biomimetics, Biomaterials, and Tissue Engineering* 2010; 6:1-18. >>> Poly(DL-lactide-co-glycolide); 75:25; IV 0.55-0.75 dL/g in chloroform; drug delivery (microspheres, bovine serum albumin); electro-spraying; graphic of emulsion technique fig 1 p. 3.

L00105 Soderquist RG, Sloane EM, Loram LC, Harrison JA, Dengler EC, Johnson SM et al. Release of plasmid DNA-encoding IL-10 from PLGA microparticles facilitates long-term reversal of neuropathic pain following a single intrathecal administration. *Pharmaceutical Research* 2010; 27(5):841-854. >>> Poly(DL-lactide-co-glycolide); 50:50; MW 75 kDa; drug delivery (microspheres, pDNA-IL-10); "In vitro pDNA release analysis demonstrated that 30% of the pDNA was released after 3 days, and steady release was achieved for greater than 75 days (Fig. 1d)" p. 4.

L00002 Acharya AP, Clare-Salzler MJ, Keselowsky BG. A high-throughput microparticle microarray platform for dendritic cell-targeting vaccines. *Biomaterials* 2009; 30(25):4168-4177. >>> Poly(DL-lactide-co-glycolide); 50:50; IV 0.55-0.75 dL/g in HFIP; drug delivery (microspheres); degraded 10% in 12 hours at pH 7.4; higher acidity = faster degradation; therapeutic indication (immunotherapy).

L00006 Benny O, Menon LG, Ariel G, Goren E, Kim SK, Stewman C et al. Local Delivery of Poly Lactic-co-glycolic Acid Microspheres Containing Imatinib Mesylate Inhibits Intracranial Xenograft Glioma Growth. *Clinical Cancer Research* 2009; 15(4):1222. >>> Poly(DL-lactide-co-glycolide); 75:25; 85:15; MW 20 kDa; drug delivery (microspheres, imatinib mesylate); mice (nude); "This is the first study to show the therapeutic efficacy of the local delivery of imatinib mesylate using a polymeric delivery system. A single local injection of PLGA microspheres loaded with a low concentration of imatinib mesylate led to 88% and 79% reduction in s.c. human (U87-MG) and murine (GL261) glioma tumors, respectively." 100% drug release by day 30 for both IV's; microspheres had a mean size of 33.83 microns in diameter; in vitro results clearly show that the PLGA preparation procedure does not affect the biological activity of imatinib mesylate; therapeutic indication (cancer); targeted delivery (tumor).

L00052 Carpenedo RL, Bratt-Leal AM, Marklein RA, Seaman SA, Bowen NJ, McDonald JF et al. Homogeneous and organized differentiation within embryoid bodies induced by microsphere-mediated delivery of small molecules. *Biomaterials* 2009; 30(13):2507-2515. >>> Poly(DL-lactide-co-glycolide); 50:50; drug delivery (microspheres); in vitro;

L00016 Lee W, Wiseman ME, Cho NJ, Glenn JS, Frank CW. The reliable targeting of specific drug release profiles by integrating arrays of different albumin-encapsulated microsphere types. *Biomaterials* 2009; 30(34):6648-6654. >>> Poly(DL-lactide-co-glycolide); 50:50; 65:35; 75:25; 85:15; MW 85 kDa (50:50); MW 95 kDa (65:35); MW 75 kDa (75:25); MW 80 kDa (85:15); drug delivery (microspheres, bovine serum albumin); Good methods and determination of release profile (p. 6649).

L00063 Wang C, Muttill P, Lu D, Beltran-Torres AA, Garcia-Contreras L, Hickey AJ. Screening for Potential Adjuvants Administered by the Pulmonary Route for Tuberculosis Vaccines. *The AAPS Journal* 2009; 11(1):139-147. >>> Poly(DL-lactide-co-glycolide); 75:25; IV 0.68 dL/g in CHCl₃ - MW 84.7 kDa; drug delivery (microspheres, muramyl dipeptide; trehalose dibehenate); in vitro; microspheres were prepared by spray drying; more TNF α was produced by THP-1 cells exposed to MPs composed of PLGA-MDP or PLGA alone than PLGA-TDB. LDH release following exposure to MPs of PLGA-MDP and PLGA alone was greater than controls. NAG release was higher following exposure to MPs of PLGA alone or PLGA-MDP 0.1% than PLGA-TDB (0.1% and 1.0%).

L00033 Wu J, Ding D, Ren G, Xu X, Yin X, Hu Y. Sustained delivery of endostatin improves the efficacy of therapy in Lewis lung cancer model. *Journal of Controlled Release* 2009; 134(2):91-97. >>> Poly(DL-lactide-co-glycolide); 50:50; IV 0.37 dL/g; drug delivery (microspheres, endostatin); mice; rats; 30 days; dose (60, 30, and 10 mg/kg); peptide; microsphere encapsulation technique p. 91, 92; no burst release found. "The use of PLGA microspheres further reduced the amount of endostatin needed to achieve significant tumor inhibition in mice when compared with systemic administration..." p. 96; targeted delivery (tumor).

L00062 Yang C, Plackett D, Needham D, Burt HM. PLGA and PHBV Microsphere Formulations and Solid-State Characterization: Possible Implications for Local Delivery of Fusidic Acid for the Treatment and Prevention of Orthopaedic Infections. *Pharmaceutical Research* 2009; 26(7):1644-1656. >>> Poly(DL-lactide-co-glycolide); 85:15; 50:50; IV 0.61 dL/g in chloroform - MW ~86 kDa; 0.58 dL/g in HFIP - MW ~84 kDa; drug delivery (microspheres, fusidic acid); in vitro; 15-20 weeks (85:15); increasing the initial drug loading from 10-30% (w/w) in the PLGA (85:15) microspheres produced a corresponding increase in encapsulation efficiency from 76±6% to 89±1%.

L00014 Yang Y, Bajaj N, Xu P, Ohn K, Tsifansky MD, Yeo Y. Development of highly porous large PLGA microparticles for pulmonary drug delivery. *Biomaterials* 2009; 30(10):1947-1953. >>> Poly(DL-lactide-co-glycolide); 50:50; IV 0.18 dL/g - MW 4 kDa; drug delivery (microspheres, lysozyme; doxorubicin hydrochloride); microparticles (average diameter, 10-20 micron) were made by the double-emulsion method; microspheres used for pulmonary drug delivery (inhalation); microscopy images of microparticles in various porosities.

L00042 Coowanitwong I, Arya V, Kulvanich P, Hochhaus G. Slow Release Formulations of Inhaled Rifampin. *The AAPS Journal* 2008; 10(2):342-348. >>> Polylactic acid; poly(DL-lactide-co-glycolide); MW 75-125 kDa; 40-65 kDa; drug delivery (rifampin); rat (Sprague-Dawley, 250-330 grams); In our study, the profiles of microspheres containing PLA show a slower release rate compared to the microspheres coated with PLGA. This can be attributed to the higher crystallinity of the PLA as compared to PLGA; release profiles Pgs. 346-347.

L00035 Horning JL, Sahoo SK, Vijayaraghavalu S, Dimitrijevic S, Vasir JK, Jain TK et al. 3-D tumor model for in vitro evaluation of anticancer drugs. *Molecular Pharmaceutics* 2008; 5(5):849-862. >>> Poly(DL-lactide); IV 0.17 dL/g; 0.44 dL/g; 0.66 dL/g; tissue engineering (scaffold); in vitro; cancer; large and porous biodegradable polymeric microspheres were used as a scaffold for 3-D growth of cancer cells; "(PLGA) are extensively used because of their biocompatibility and high mechanical strength" p. 850; "We used PLA polymer as it demonstrated better cell growth than PLGA polymer in our previous study." p. 851.

L00095 Lu J, Jackson JK, Gleave ME, Burt HM. The preparation and characterization of anti-VEGFR2 conjugated, paclitaxel-loaded PLLA or PLGA microspheres for the systemic targeting of human prostate tumors. *Cancer Chemotherapy and Pharmacology* 2008; 61(6):997-1005. >>> Poly(DL-lactide-co-glycolide); 85:15; IV 0.61 dL/g; drug delivery (microspheres, paclitaxel); prostate cancer; "it is now recognized that microspheres in the 1-3 micron size range may allow for unrestricted circulation of microspheres [1, 6] without physical entrapment by capillaries." p. 998; effect of PLGA concentration on the particle size distribution of PLGA microspheres p. 1000; release compared between PLLA and PLGA.

L00070 Teply BA, Tong R, Jeong SY, Luther G, Sherifi I, Yim CH et al. The use of charge-coupled polymeric microparticles and micromagnets for modulating the bioavailability of orally delivered macromolecules. *Biomaterials* 2008; 29(9):1216-1223. >>> Poly(DL-lactide-co-glycolide); 50:50; IV 0.18 dL/g in HFIP; drug delivery (microspheres); in vitro; in vivo (mice);

L00104 Zidan AS, Sammour OA, Hammad MA, Megrab NA, Habib MJ, Khan MA. Process analytical technology: Non-destructive assessment of anastrozole entrapment within PLGA microparticles by near infrared spectroscopy and chemical imaging. *Journal of Microencapsulation* 2008; 25(3):145-153. >>> Poly(DL-lactide-co-glycolide); 50:50; drug delivery (microspheres, anastrozole); microencapsulation; SEM photographs of PLGA microspheres p. 148.

L00117 Gu H, Song C, Long D, Mei L, Sun H. Controlled release of recombinant human nerve growth factor (rhNGF) from poly [(lactic acid)-co-(glycolic acid)] microspheres for the treatment of

neurodegenerative disorders. *Polymer International* 2007; 56(10):1272-1280. >>> Poly(DL-lactide-co-glycolide); 75:25; IV 1.1 dL/g in chloroform; drug delivery (microspheres, rhNGF); in vivo (Rats, Sprague Dawley, 250-300 g); in vitro; 3-5 weeks; delivery was for 4 weeks; electron micrographs of microspheres at various time points p. 1275; release rate to time graphs p. 1276; encapsulation of rhNGF in PLGA microspheres provides a sustained release formulation with low initial burst (11.4%) for at least 35 days *in vitro*.

L00078 Liman M, Peiser L, Zimmer G, Pr-psting M, Naim HY, Rautenschlein S. A genetically engineered prime-boost vaccination strategy for oculonasal delivery with poly (D,L-lactic-co-glycolic acid) microparticles against infection of turkeys with avian Metapneumovirus. *Vaccine* 2007; 25(46):7914-7926. >>> Poly(DL-lactide-co-glycolide); drug delivery (microspheres); in vitro (cell culture); "The PLGA-MP as the controlled release system were shown in vitro to efficiently deliver the F protein-based aMPV-vaccines to avian cells" p. 7924.

L00096 Sharma R, Muttill P, Yadav AB, Rath SK, Bajpai VK, Mani U et al. Uptake of inhalable microparticles affects defence responses of macrophages infected with *Mycobacterium tuberculosis* H37Ra. *Journal of Antimicrobial Chemotherapy* 2007; 59:499-506. >>> Poly(DL-lactide); drug delivery (microspheres, isoniazid, rifampicin);

L00097 Sweet JL, Pillay V, Choonara YE. Design and Development of a Novel Controlled Release PLGA Alginate-Pectinate Polyspheric Drug Delivery System. *Drug Delivery* 2007; 14(5):309-318. >>> Poly(DL-lactide-co-glycolide); 85:15; IV 0.72dL/g - MW 100 kDa; drug delivery (microspheres, diclofenac sodium); in vitro; in vivo (rats, male, 300 grams); microspheres were crosslinked to polyspheres to reduce initial burst effect; drug release rate chart / comparison p. 316.

L00025 Zhao H, Gagnon J, Hafeli UO. Process and formulation variables in the preparation of injectable and biodegradable magnetic microspheres. *BioMagnetic Research and Technology* 2007; 5(1):2. >>> Poly(DL-lactide- co-glycolide); 85:15; IV 0.61 dL/g - MW 23.878 kDa; drug delivery (microspheres, magnetic); microspheres were fabricated using a water-in-oil-in-water (w/o/w) double emulsion solvent evaporation method.

L00004 Amrite AC, Ayalasomayajula SP, Cheruvu NPS, Kompella UB. Single periocular injection of celecoxib-PLGA microparticles inhibits diabetes-induced elevations in retinal PGE2, VEGF, and vascular leakage. *Investigative ophthalmology & visual science* 2006; 47(3):1149. >>> Poly(DL-lactide-co-glycolide); 85:15; IV 0.67 dL/g; drug delivery (microspheres, celecoxib); rat (eye - periocular space); targeted delivery (eye - periocular space); therapeutic indication (diabetes); control group received mp with no drug; 60 days of drug delivery; sterilized by gamma irradiation; in vitro release also evaluated; 50% of drug released at end of 60 days in in vitro study; "The sterilization process did not affect the release of celecoxib from the celecoxib-PLGA microspheres"; "The visual inspection of the periocular tissue (site of injection) did not reveal the presence of any inflammation, including redness and edema for the rats that were injected with celecoxib-PLGA microparticles."

L00047 Dhanaraju MD, RajKannan R, Selvaraj D, Jayakumar R, Vamsadhara C. Biodegradation and biocompatibility of contraceptive-steroid-loaded poly (dl-lactide-co-glycolide) injectable microspheres: in vitro and in vivo study. *Contraception* 2006; 74(2):148-156. >>> Poly(DL-lactide-co-glycolide); MW 70 kDa; drug delivery (microspheres, levonorgestrel, ethinyl estradiol); in vitro; rat (Wistar, female, 170-200 g); 20 weeks; In vivo systemic circulation was maintained until Week 15; "The rate of PLG microsphere degradation in achieving controlled release affords less frequent administration, thereby increasing patient compliance, reducing discomfort, protecting the therapeutic compound and maintaining constant blood levels of the drug within the body" p. 148; release rate comparisons / results p. 154; intramuscular.

L00130 Wang F, Blanco E, Ai H, Boothman DA, Gao J. Modulating β -lapachone release from polymer millirods through cyclodextrin complexation. *Journal of pharmaceutical sciences* 2006; 95(10):2309-2319. >>> Poly(DL-lactide-co-glycolide); 50:50; IV 0.65 dL/g - MW 50 kDa; drug delivery (microspheres, β -lapachone); β -lapachone was found to have a solid-state solubility of 13% in PLGA; cancer; "sustained drug release was achieved when β -lap was complexed with α -CD or γ -CD" p. 2309; microspheres were in millirods; release profile schematic p. 2314.

L00032 Zaghoul AA, Mustafa F, Siddiqui A, Khan M. Response Surface Methodology to Obtain -Estradiol Biodegradable Microspheres for Long-Term Therapy of Osteoporosis. *Pharmaceutical development and technology* 2006; 11(3):377-387. >>> Poly(DL-lactide); poly(DL-lactide-co-glycolide); 85:15; IV 0.26 dL/g - 12-24 kDa (PLA); IV 0.61 dL/g - MW 80 kDa (PLGA); drug delivery (microspheres, estradiol); in vitro; "Poly-lactic acid (PLA), poly-glycolic acid (PGA), and their copolymers, poly (lactide-co-glycolide) (PLGA) have generated immense interest because of their excellent biocompatibility and biodegradability." p. 378; drug encapsulation efficiency p. 379.

L00023 Zidan AS, Sammour OA, Hammad MA, Megrab NA, Hussain MD, Khan MA et al. Formulation of anastrozole microparticles as biodegradable anticancer drug carriers. *AAPS PharmSciTech* 2006; 7(3):E1-E9. >>> Poly(DL-lactide-co-glycolide); 50:50; drug delivery (microspheres, anastrozole); in vitro; cancer (breast); microspheres prepared by an oil-in-water (O/W) emulsion/solvent evaporation technique; composition and encapsulation parameters table (p. E3); drug release data (p. E6-E7).

L00058 Bushell JA, Claybourn M, Williams HE, Murphy DM. An EPR and ENDOR study of γ - and β -radiation sterilization in poly (lactide-co-glycolide) polymers and microspheres. *Journal of Controlled Release* 2005; 110(1):49-57. >>> Poly(DL-lactide-co-glycolide); 75:25; 65:35; 50:50; pharmaceutical research (sterilization of microspheres vs raw polymer); in vitro; Compared irradiation of various monomer ratios; table comparing the quality of materials after radiation p. 51; "...the relative distribution of the radicals present is found to be solely dependent on the lactide:glycolide ratio and not on the type of radiation used (gamma radiation versus beta radiation)" p. 57.

L00102 Cho M, Sah H. Formulation and process parameters affecting protein encapsulation into PLGA microspheres during ethyl acetate-based microencapsulation process. *Journal of Microencapsulation* 2005; 22(1):1-12. >>> Poly(DL-lactide-co-glycolide); 75:25; IV 0.67 dL/g in chloroform; drug delivery (microspheres, lysozyme protein);

L00031 Zaghoul AAA, Mustafa F, Siddiqui A, Khan M. Biodegradable microparticulates of beta-estradiol: preparation and in vitro characterization. *Drug Development and Industrial Pharmacy* 2005; 31(8):803-811. >>> Poly(DL-lactide); poly(DL-lactide-co-glycolide); 85:15; 75:25; IV 0.26 dL/g - MW 12-24 kDa (DL-PLA); IV 0.61 dL/g - MW 80 kDa (PLGA); drug delivery (microspheres, estradiol); in vitro; "Formulation fabricated from PLGA 85:15 (1:3) showed less burst and consistent long time release" p. 803.

L00024 Zhou H, Zhang Y, Biggs DL, Manning MC, Randolph TW, Christians U et al. Microparticle-based lung delivery of INH decreases INH metabolism and targets alveolar macrophages. *Journal of Controlled Release* 2005; 107(2):288-299. >>> Poly(DL-lactide); IV 1.00 dL/g - MW 137 kDa; drug delivery (microspheres, lung); in vitro; rat (intratracheal); targeted delivery (intratracheal).

L00099 Carvalho-Queiroz C, Cook R, Wang CC, Correa-Oliveira R, Bailey NA, Egilmez NK et al. Cross-reactivity of *Schistosoma mansoni* cytosolic superoxide dismutase, a protective vaccine candidate, with host superoxide dismutase and identification of parasite-specific B epitopes. *Infection and immunity* 2004; 72(5):2635-2647. >>> Poly(L-lactide); MW 2 kDa; drug delivery (microspheres, SmCT-SOD-GST); mice (female, BALB/c, 5-6 weeks old); drug is an antioxidant.

L00124 Egilmez NK, Jong YS, Mathiowitz E, Bankert RB. Tumor vaccination with cytokine-encapsulated microspheres. *Methods in Molecular Medicine* 2003; 75:687-696. >>> Poly(L-lactide); MW 2 kDa; MW 24 kDa; drug delivery (microspheres, IL-2, recomb human; IL-12, recomb murine; GM-CSF, recomb murine); cancer.

L00128 Schaefer MJ, Singh J. Effect of tricaprln on the physical characteristics and in vitro release of etoposide from PLGA microspheres. *Biomaterials* 2002; 23(16):3465-3471. >>> Poly(DL-lactide-co-glycolide); 50:50; IV 0.61 dL/g; drug delivery (microspheres, etoposide); in vitro; cancer.

L00122 Garcia-Contreras L, bu-Izza K, Lu DR. Biodegradable cisplatin microspheres for direct brain injection: preparation and characterization. *Pharmaceutical development and technology* 1997; 2(1):53-65. >>> Poly(DL-lactide-co-glycolide); 50:50; IV 0.74 dL/g; drug delivery (microspheres, cisplatin); in vitro; 14-43 days p. 62; cancer; "...suggest that microspheres smaller than 250 pm are suitable for direct injection into the brain. However, the microspheres should be large enough to achieve a sustained release of the drug over 3-5 weeks, corresponding to the current cisplatin dosing schedule. Based on this, a particle size range of 200-250 pm was selected as the desirable size range for cisplatin microspheres." p. 56; "cisplatin release from the microspheres was sustained for more than 40 days, with a constant release rate period of approximately 20 days." p. 62.