

# Index

- absorbance 90, 143, 183, 355, 381,  
427, 482, 662, 704, 761–62, 793,  
845–46, 868, 895, 932
- acetone 32, 163–64, 217, 351–52, 355,  
398, 449, 452, 788–89, 846, 869,  
953–54, 961
- active targeted nanoparticles (ATN)  
788, 796
- ADME *see* adsorption, distribution,  
metabolism, and excretion
- adsorption, distribution, metabolism,  
and excretion (ADME) 4, 15, 82,  
84–85, 96, 140, 341, 595, 597, 625,  
841, 888, 941
- AFM *see* atomic force microscopy
- anticancer drugs 23–28, 49–50, 70,  
106–10, 125–28, 195–96, 245–46,  
258–60, 345–46, 371–73, 444–45,  
596–97, 675–77, 715–16, 735–37
- delivery of 362, 903, 951
- hydrophobic 31, 49, 110, 498, 953
- oral bioavailability of 171, 196, 246,  
448, 498, 683, 890, 940
- oral delivery of 17, 101, 109–10,  
128, 135, 154, 177, 193, 212, 229,  
243, 445, 591, 715–16, 730
- targeted delivery of 26, 109, 130,  
391, 498, 587
- area under the curve (AUC) 10–11, 25,  
44, 50, 92–93, 130, 144, 148–51,  
158, 162, 170, 175, 183, 190–91,  
235, 239–42, 613–17, 624, 638,  
640, 642, 656, 673, 686, 690,  
692–93, 700, 941–43, 947
- ATN *see* active targeted nanoparticles
- atomic force microscopy (AFM) 35–36,  
86, 112–13, 267, 281–82, 288,  
293–94, 303, 309–11, 318,  
320–25, 683–84, 737–38, 890, 892
- AUC *see* area-under-the curve
- BBB *see* blood–brain barrier
- BCEC *see* brain capillary endothelial  
cells
- Biodegradable Copolymer Blend 358,  
364, 395–96, 398, 400, 402, 404,  
406, 408, 410, 412, 414, 521–22,  
524, 526
- biodegradable PLA-TPGS copolymers in  
drug delivery 951, 953, 955, 957,  
959, 961, 963, 965
- biodegradable polymeric nanoparticles  
130
- biodistribution 13, 55, 130, 159,  
161–62, 164, 170, 172, 175, 342,  
347, 469–71, 476, 598, 604, 614,  
616–17, 623–25, 629, 638, 640,  
642, 694, 704, 757, 763, 770,  
777–78, 788, 791, 798–99, 803,  
826, 839, 843, 880, 942, 955, 957,  
960, 968
- blood–brain barrier (BBB) 4, 11–12,  
35, 51–52, 67–68, 75, 82, 171,  
755–58, 772–74, 776–78, 780–82,  
784–88, 799–801, 803–7
- brain cancer cells 503, 523, 975
- brain capillary endothelial cells  
616, 772, 786, 806
- brain capillary endothelial cells (BCEC)  
616, 772, 786, 788, 806
- brain tissues 757, 771–74, 777, 779,  
786, 799, 950
- brain tumors 56, 77, 79, 82, 108, 120,  
334, 755, 778, 780–82, 785, 804

- breast cancer 60, 135, 157, 285, 372, 377, 392, 397, 416, 421, 443, 445–46, 542–43, 567–69, 589–90
- metastatic 96, 241, 372–73, 416, 443–44, 568, 590, 667, 678
- cancer, metastatic 22–23, 715
- cancer cell viability 118, 459, 661, 671, 792
- cancer cells
  - breast 175, 350, 370, 438–39, 446, 471, 536, 562, 591, 976, 980
  - growth of 361, 385, 485
  - human 175, 477, 498, 549
- cancer nanotechnology 81–83, 100, 129, 153, 159, 170, 195, 211, 232, 240, 245, 370, 392, 493, 542
- cancerous cells 12, 26, 49, 109, 596, 655, 681, 735
- cardiovascular diseases 29, 140, 815, 819
- cellular uptake efficiency 8, 10, 168, 235, 363, 369, 388–89, 436–37, 488, 535, 708–9, 746–48, 760–61, 767–70, 777–78
- cellular uptake of polymeric nanoparticles 17, 101, 128, 135, 154, 177, 193, 212, 229, 243, 260, 373, 417, 445, 716
- chemical emulsifiers, traditional 253, 309–10, 376
- chemotherapeutic drugs 26, 55, 590, 843, 858
- chemotherapeutic engineering 4–9, 11–12, 14–15, 24–25, 27–28, 45, 50–51, 83, 97–98, 120–21, 129, 140–41, 151, 232, 656, 682, 736
- chemotherapy, controlled 141, 151, 441
- chitosan nanoparticles 34, 61–62, 67, 70, 76–77, 125
- cholesterol 6, 46, 48–49, 111, 145, 192, 232, 287, 290–93, 297–300, 302, 471
- CMC *see* critical micelle concentration
- conjugated herceptin 407–9, 414
- conjugation, polymer–drug 597, 618, 623, 625, 640–42
- controlled drug delivery 47, 74, 76, 80, 123, 282, 335, 393, 497, 807, 946
- copolymer blend nanoparticles 357, 407
- copolymer nanoparticles 166, 953–54, 963
- copolymer technology for advanced nanomedicine 339–44, 346
- coumarin-6 88–90, 116, 133, 142, 146–47, 161, 168–69, 233, 351–52, 354, 362–65, 378–80, 386–88, 398–99, 402, 410–12, 423, 426–27, 434–36, 442, 478–79, 482, 486–88, 503–4, 509–11, 513, 570, 572–73, 578–79, 580–83, 701, 703, 708, 717–19, 721, 723–27, 737, 739, 757–74, 777–79
- critical micelle concentration 276, 481, 759, 842, 849, 873, 939
- critical micelle concentration (CMC) 276, 476, 481, 484, 492, 494, 759, 842–43, 849, 873, 939, 944
- cytoplasm 42, 169, 364–66, 387–88, 396, 411–12, 434–35, 471–72, 486–87, 610, 730, 768, 828–29, 834–36, 878–79
- cytoplasmic delivery 471–72, 474
- DDD *see* drug delivery devices
- DDS *see* drug delivery systems
- dendrimers 7, 339, 475, 548, 812, 913
- differential scanning calorimetry (DSC) 39, 86–87, 114, 180, 182, 185–86, 219, 223, 280–82, 288, 303, 657, 660, 701–2, 737
- dipalmitoyl phosphatidylcholine 35–36, 38–39, 42–43, 80, 118, 145, 287, 290–94, 297–300, 303, 309–10, 312–13, 315–28, 330, 696
- diseased cells 7, 15, 83, 205, 341, 347–48, 419, 468, 472, 821, 913, 964
- DLE *see* drug loading efficiency
- DNA-chitosan nanoparticles 34, 71, 75

- docetaxel 16–17, 341–43, 366–73,  
390–91, 397–99, 419–23, 440–42,  
444–46, 477–80, 489–92, 522–26,  
537–41, 655–60, 775–77, 788–90  
targeted delivery of 343, 350, 370,  
414, 523
- docetaxel-loaded nanoparticles 350,  
359–60, 371, 377, 380–81, 383,  
422–23, 427, 429–30, 433, 438,  
657, 660–61, 666
- docetaxel-loaded PLGA nanoparticles  
658–59, 661–63, 667–68, 759–60,  
763, 765–66, 778
- docetaxel-loaded TPGS<sub>2k</sub> micelles  
483–84
- double emulsion 86, 914, 929, 946,  
953, 955, 962
- doxorubicin 15, 17, 61–62, 67, 124–25,  
283–84, 342, 345, 393, 619–21,  
624–26, 645, 756, 861, 973
- DPPC *see* dipalmitoyl  
phosphatidylcholine
- drug carriers 51, 65, 73, 283, 393, 428,  
468, 476, 569, 590, 657, 678, 736,  
750, 838
- drug delivery, protein 963
- drug delivery devices (DDD) 27, 40, 45,  
50, 55, 77, 100, 114, 120–21, 123,  
226, 287, 347, 425, 571
- drug delivery systems (DDS) 6, 47, 54,  
60, 65, 68–69, 76, 103, 123, 286,  
348–49, 396, 475–76, 492–93,  
940–41
- drug delivery systems, novel 47, 69,  
123
- drug diffusion 25, 54, 107, 113, 258,  
264, 301, 429–30, 578, 667, 689
- drug encapsulation 43, 131, 181, 192,  
227, 249, 526, 529, 704, 740, 801,  
976
- drug-loaded nanoparticles 35, 37–38,  
42, 114–18, 145–46, 164–65, 202,  
220, 350–51, 379–80, 419,  
452–53, 663–65, 683–84, 744
- drug-loaded PLA-TPGS nanoparticles  
166, 248–49, 255, 790
- drug loading 53, 112, 115–16, 131,  
158, 163–66, 175, 253–56,  
274–75, 469–70, 688, 704–5, 945,  
951, 953–55
- drug loading efficiency (DLE) 164–65,  
254, 946, 955
- drug release, controlled 149, 216, 225,  
380, 481, 567, 756
- drug release kinetics 32, 35, 40, 48, 54,  
87, 110, 112, 115, 119, 235, 237,  
254, 393, 572
- drug release mechanisms 107, 113,  
258
- drug resistance 4, 26, 30, 66, 82, 106,  
108–9, 140, 174, 396, 596, 625,  
942
- DSC *see* differential scanning  
calorimetry
- EGFR endocytosis 473
- emulsifier lipid 329–30, 332
- emulsifier molecules 37, 114, 236
- encapsulation efficiency 40, 163–65,  
199, 253–54, 287–90, 319–22,  
329–30, 383, 428–29, 456, 483–84,  
664–65, 760, 764–66, 953–55
- enhanced cellular uptake 414, 462–63,  
597, 945, 958, 975, 977
- FBS *see* fetal bovine serum
- FESEM *see* field emission scanning  
electron microscopy
- fetal bovine serum (FBS) 182, 233–34,  
351, 378, 398, 422, 426, 449, 478,  
499, 523, 550, 570, 572, 684–85
- field emission scanning electron  
microscopy (FESEM) 8–9, 86, 160,  
196, 199, 218, 248, 379, 501, 553,  
659, 701–2, 759, 789, 892
- fluorescence resonance energy transfer  
(FRET) 542, 548, 890
- fluorescent markers 116, 142, 580,  
717–19, 722, 757, 763, 777
- fluorescent nanoparticles 89, 117, 133,  
169, 365, 708, 718, 737, 745, 816,  
840, 906
- fluorescent polystyrene nanoparticles  
717, 724, 730

- folate-decorated nanoparticles 506–7, 513, 534–35, 539, 562
- folate decoration 503, 511, 513, 523, 530, 532–39, 549, 553–58, 560–62
- folate overexpression 380, 481
- folate receptors 388, 394, 462–64, 477, 486, 494–95, 498, 513–16, 522–23, 543–44, 548–50, 558, 561–62, 564–65, 619–21
  - over-expression of 550, 558, 561–62
- folic acid 16–17, 96, 341, 345, 349–50, 371, 377–78, 384–86, 388, 478–80, 483–89, 498, 548–51, 595–96, 618
- Fourier transform infra-red spectroscopy (FTIR) 38, 53, 86, 114, 246–47, 597, 600, 604, 617, 871, 890, 893, 900
- FRET *see* fluorescence resonance energy transfer
- FTIR *see* Fourier transform infra-red spectroscopy
- gel permeation chromatography (GPC) 196–97, 201, 246–47, 252, 500, 505, 625–26, 630, 632, 658, 663, 866, 870, 895, 952
- gelatin 32, 111, 287, 290–93, 297–300, 302, 309, 700, 846
- gelatin nanoparticles 59–60, 69
- glioma cells 143, 453, 499, 509, 625, 627, 636, 756, 758, 775–76, 781, 796–98, 801–2, 940, 942
- glutaric acid 422, 424, 449, 451, 499–500, 523–25, 550, 967
- GPC *see* gel permeation chromatography
- Hank's balanced salt solution (HBSS) 161, 233, 570, 661, 701, 703, 717, 719–20, 739
- HBSS *see* Hank's balanced salt solution
- herceptin 343, 348–52, 359–60, 364, 366, 368–70, 372–73, 397–98, 400–1, 403–7, 409–10, 413–14, 467–72, 568, 589–90
- high performance liquid chromatography (HPLC) 40, 87, 114–15, 142–43, 181–83, 233–34, 265–66, 282, 287, 310–12, 353, 379, 683–87, 737–38, 789–90
- high performance magnetic nanoparticles 17, 649–54
- HPLC *see* high performance liquid chromatography
- hydrophilic drugs 6, 8, 45, 48, 85–86, 196, 216, 340, 498
- hydrophobic drugs 6, 45, 86, 330, 376, 386, 397, 485
- IC<sub>50</sub> 9, 92, 130, 148, 197, 200, 208, 210–11, 342, 366–68, 391, 414, 437, 460, 489, 491, 538–41, 574, 586–88, 611–12, 617, 634–35, 637, 641–42, 662, 671, 673, 676, 710, 757, 776–77, 779, 793, 801, 803, 942–43, 945–46, 950, 954, 958, 967–69, 971
- intestinal cells 50, 682, 716, 736, 744–45, 756
- intestinal epithelial cells 42, 50, 117, 694, 716
- iron oxide 17, 813–14, 816–17, 819–24, 826–28, 830–32, 836–52, 854–61, 863–67, 871–72, 874, 876–78, 880–85, 911–34, 953–54
- iron oxide-loaded micelles 849, 851–52, 854–56, 858
- iron oxide-loaded NPs 914, 917, 929–31
- iron oxide-loaded PLA-TPGS nanoparticles 826, 867, 872, 874, 876
- iron oxide-loaded PLGA-mPEG nanoparticles 914–17, 919–24, 927, 930
- iron oxide-loaded TPGS micelles 848, 850, 853, 855–56, 944
- iron oxide nanoparticles 654, 859, 861, 866, 883, 885

- ligand conjugation 342, 344, 349, 357, 359, 361, 364, 378, 391, 396–97, 407, 778, 913
- ligand molecules 350, 357, 396
- lipid bilayers 6, 45–46, 376
- lipid monolayers 52–53, 62–64, 80, 336, 386, 947
- liposomes  
     coated 946, 975  
     freeze-dried 48–49
- listeriolysin O (LLO) 471–72
- liver 4, 26–27, 170–71, 470, 614–16, 638–40, 770–72, 787, 799–800, 832–33, 855, 857–58, 864, 880–83, 965
- LLO *see* listeriolysin O
- LLO liposomes 472
- magnetic micelles 843–47
- magnetic nanoparticles 650–51, 654, 816, 860, 884
- magnetic resonance imaging (MRI) 17, 811–12, 816–17, 820, 826, 833, 836–43, 847, 857–61, 863–64, 881–83, 911–12, 914, 933, 963–64
- maximum tolerance dose (MTD) 390–91, 468, 613, 638
- MBC *see* metastatic breast cancer
- MCF7 cells 364–66, 380–81, 387–88, 411–12, 481–82
- MDCK cells 760–61, 767–68, 777, 779, 950
- MDR *see* multi-drug resistance
- metastatic breast cancer (MBC) 96, 241, 348, 372–73, 397, 416, 443–44, 568, 589–90, 667, 678
- micelles 5–6, 16, 119–20, 415–16, 469–71, 475–80, 482–86, 488, 490–94, 812–13, 842, 847–61, 872–73, 940–41, 944–45  
     conjugated 470, 483, 486, 488–89
- molecular biomaterials 7, 939–40, 942, 944, 946, 948, 950, 952, 954, 956, 958, 960, 962, 966, 968, 970
- mononuclear phagocytosis system (MPS) 171, 799–800, 820
- MPS *see* mononuclear phagocytosis system
- MRI *see* magnetic resonance imaging
- MTD *see* maximum tolerance dose
- multi-drug resistance (MDR) 26, 30, 49, 109, 158, 303, 371, 460, 595, 618, 624, 643–44, 803, 854–55, 940
- multi-functional nanoparticles 17, 95, 98–99, 343, 519, 843, 978
- multi-modal imaging 11, 14, 809, 811–16, 821, 832, 964, 980
- multi-modal therapy 22, 652–53
- multi-modal tumor imaging 17, 346, 817, 819–20, 822, 824, 826, 828, 830, 832, 834, 836, 838, 840, 980
- N*-hydroxysuccinimide (NHS) 351, 398, 400, 422–24, 449, 451–52, 454, 471, 478–79, 499–500, 523–25, 550–51, 598–99, 604–5, 625
- nanocarriers 6–7, 14, 340, 342, 344, 348, 370, 396, 398, 415, 470, 474, 787–88, 812, 815
- nanconjugation 472–74
- nanoimmunotherapy 15
- nanomedicine 83, 129, 191, 340, 342–43, 421, 521, 653, 940–41
- nanoparticle characterization 35, 86–87, 111, 142, 160, 233, 702, 718
- nanoparticle drug delivery systems 349
- nanoparticle technology for  
     chemotherapy 29, 31, 33, 35, 37, 39, 41, 43
- nanoparticles  
     cellular uptake of 11–12, 36, 88, 246, 717, 723, 727  
     coated 51, 117, 393, 949, 954  
     coumarin-6-loaded 142, 146–47, 435, 768, 774  
     freeze-dried 274, 401, 738  
     inorganic 14, 84, 97, 131, 151, 170, 342, 475  
     internalized 117, 720, 728, 730

- non-degradable 14, 151, 170
- paclitaxel-loaded MPEG-PLA 184, 186–87
- nanoparticles of biodegradable copolymers 343, 597, 889
- nanoparticles of biodegradable polymers 6, 13–15, 29–30, 81–84, 92, 94–102, 104–8, 119–21, 135, 140, 151–52, 192–93, 588, 675–77, 730–31
- nanoparticles of PLA-TPGS copolymers 94, 130, 837
- nanoprecipitation 101, 124, 180–81, 184, 191, 216–17, 219–20, 225, 350–51, 864–65, 867, 873–77, 882, 947, 953
- nanospheres 36, 61, 72, 102, 123–24, 128, 153, 193, 226, 308–9, 311, 313–14, 316–33, 335, 806
- emulsified 318, 325, 328–29
- fabricated 321, 332
- nanotechnology for multimodal imaging 811–16
- nanothermotherapy 15, 17, 649–54, 842–43
- new-concept chemotherapy 81–86, 88, 90, 92, 94, 96–100, 102, 104–10, 112, 114, 116, 151–52, 588, 677, 973
- NHS *see* *N*-Hydroxysuccinimide
- non-targeting nanoparticles (NTN) 788, 790, 796
- NTN *see* non-targeting nanoparticles
- optical imaging 811–12, 816
- oral chemotherapy 4–5, 11–12, 16, 49–51, 108–10, 119–20, 232–33, 655–56, 676–77, 681, 695, 699, 711, 715–17, 735–36
- oral drug delivery 69, 74, 207, 448, 476, 682, 770
- clinical administration of 17, 63, 100–1, 107, 124, 135, 152, 154, 192, 211, 226, 242, 265, 312, 465
- clinical application of 24, 106, 308
- controlled release of 16, 101, 123–24, 152–53, 242–43, 259, 306–8, 332, 416–17, 444–45, 591, 619, 713, 732, 783
- encapsulation efficiency of 235, 267, 289–90
- extraction of 24, 107, 308
- formulation of 86, 117, 177, 216, 231–32, 234, 236, 238, 240, 242, 342, 445, 465, 516, 691
- nanoparticle formulation of 86, 92, 150–51, 476, 700
- oral 5, 71, 126, 677, 683, 696
- oral bioavailability of 5, 683, 691, 701, 735
- oral delivery of 42, 50, 232, 656, 683, 736–37
- targeted delivery of 437, 597
- paclitaxel-loaded nanoparticles 41, 93, 115, 143, 145, 149, 160, 188, 217–18, 225, 246, 253–56, 259, 500–1, 503
- paclitaxel-loaded PLA-TPGS nanoparticles 84, 93, 163, 166–67, 174–75, 248, 252, 254–59, 341
- PBS *see* phosphate buffered saline
- PEG *see* polyethylene glycol
- PEG copolymers 341
- PEGylation 5, 85, 341, 941
- peptide nucleic acid (PNA) 60, 127
- PGA *see* poly(L-glutamic acid)
- pharmaceutical nanotechnology 232
- pharmacokinetics 4, 25, 54, 82, 106, 108–9, 120–21, 140, 159, 161, 169, 172, 175, 191, 642
- phosphate buffered saline (PBS) 200, 353–54, 402, 426–27, 453, 503–4, 528–29, 601–4, 627, 660–62, 760–63, 823–26, 844–46, 868–69, 893–95
- physiological drug barrier 4, 82, 96–97, 99, 108, 120–21, 140, 419
- PLA *see* poly(D,L-lactic acid)
- PLA nanoparticles 44, 119, 278
- paclitaxel
  - biodistribution of 162, 170, 694

- PLA-PEG nanoparticles 44, 119, 171
- PLA-TPGS copolymers 8, 130, 159–60, 198, 201, 246–47, 249–55, 498–99, 505, 549–50, 663–65, 822–23, 870–71, 895, 952–53
- PLA-TPGS nanoparticles 93, 157–60, 162, 164–66, 168–76, 178, 205, 254, 258, 341–44, 397, 416, 704–5, 828, 890
- PLGA microspheres 49, 290–91, 293, 298, 300, 302
- PLGA/MMT nanoparticles 587, 736–39, 744, 748
- PLGA nanospheres 38, 316–17, 321, 326–27
- PNA *see* peptide nucleic acid
- poly(D,L-lactic acid) (PLA) 8, 40–41, 61, 85, 93, 195–96, 215–17, 219–21, 224–25, 278–80, 309–10, 663, 822, 870, 951–52
- poly(L-glutamic acid) (PGA) 85, 340, 596, 624, 941, 952
- polyethylene glycol (PEG) 5–6, 46, 180, 216, 228, 340–41, 348–49, 377–78, 476–78, 521, 542, 624, 812–13, 939, 941
- polymer-core nanoparticles 376, 382
- polymer matrix swelling 107, 258
- polymeric matrix materials 245, 254–55, 513, 929
- polymeric microspheres 47–48, 141, 158, 294, 783, 946, 976, 978
- polymeric nanospheres 16, 72, 101, 124, 135, 153, 177, 193, 211, 243, 259, 284, 310, 312, 619
- polymeric particles, biodegradable 263, 913
- polymeric prodrugs 596, 617–18
- polysorbate 33, 57, 64, 67, 125, 180, 421, 477, 781–83, 788
- polystyrene nanoparticles 726, 729–30
- polyvinyl alcohol 35–36, 116, 145, 159, 197, 232, 265, 282, 287, 303, 309–10, 376, 569–70, 764–69, 774–76
- post-conjugation strategy 350, 396–97, 407
- pre-conjugation strategy 349–50, 396–97, 407
- preformed polymers 31, 86, 864
- prodrugs 5, 55, 339, 341, 593, 595–97, 616, 624–25, 630, 639, 641–42, 682, 941–43, 968
- propidium iodide 122, 142, 146, 152, 161, 175–76, 364–65, 387–88, 411–12, 427–28, 486–88, 571, 573, 670, 768
- pyridine 398, 449–52, 454, 499–500, 523, 550–51, 967
- QDs  
     *see* quantum dots  
     cytotoxicity of 539, 548, 562, 904
- QDs encapsulation efficiency 527, 534, 549, 553–54, 556, 828, 894, 902, 905
- quantum dots (QDs) 16–17, 522–27, 531–36, 538–39, 543–44, 547–51, 553–54, 556–60, 562–66, 813–14, 820–24, 826–39, 887–95, 899–908, 963–66
- receptor-mediated endocytosis (RME) 348, 364, 388, 411, 415, 477, 486, 488, 549, 560, 596, 772–73, 798, 805
- RME *see* receptor-mediated endocytosis
- scanning electron microscopy (SEM) 35, 86, 142, 216, 233–34, 267, 281–82, 288, 301–3, 309, 311, 318, 329, 717–18, 737–38
- SEM *see* scanning electron microscopy
- silica nanoparticles 813–14, 817, 906
- single emulsion 84, 86, 141, 159, 233, 266, 276, 281, 303, 309–10, 312, 381, 441, 499–500, 513, 531, 683–84, 687, 717, 757–58, 865, 867, 871–73, 882, 891, 940, 953–54, 963–64
- SLN *see* solid lipid nanoparticles

- small-molecule drug chemotherapy  
179, 191, 392, 885
- solid lipid nanoparticles (SLN) 7, 34,  
44, 59, 65, 72, 76, 80, 102, 119,  
123, 127, 392, 781, 976
- solid lipid nanoparticles,  
long-circulating 44, 59, 102, 119,  
127
- solid tumors 23, 26–27, 55, 58, 60, 62,  
66–67, 78, 103, 126–27, 228, 232,  
497, 514, 563
- spleen 46, 61, 162, 170–71, 174, 470,  
604, 614–16, 629, 638–40, 757,  
762, 770–72, 777, 799–800
- stannous octoate 197, 247, 249,  
398–99, 422, 424, 449, 499, 550,  
658, 866, 891, 951
- superparamagnetic iron oxides 17,  
817, 839, 863, 911–12, 914, 916,  
918, 920, 922, 924, 926, 928, 930,  
932
- targeted drug delivery, quantitative  
control of 364, 367
- TEM *see* transmission electron  
microscopy
- TGA *see* thermal gravimetric analysis
- thermal gravimetric analysis (TGA)  
571, 577–78, 657, 660, 664,  
737–38, 741, 844, 849–50,  
952
- tocopheryl polyethylene glycol  
succinate (TPGS) 40–43, 111–18,  
195–98, 200–8, 235–38, 249–60,  
268–70, 272–82, 397–400,  
475–78, 595–98, 640–42, 764–72,  
939–56, 972–80
- TPGS *see* tocopheryl polyethylene glycol  
succinate
- TPGS-coated nanoparticles 117, 723,  
727–28
- TPGS-coated PLGA nanoparticles  
90–91, 168, 238, 717, 723, 730
- TPGS-coated PLGA NPs 709, 950
- TPGS-emulsified nanoparticles 130,  
135, 145, 940, 947, 949
- transmission electron microscopy  
(TEM) 89, 112, 382, 553, 717,  
720–21, 729–30, 844, 847, 855–56,  
865, 892, 898, 914–15, 930
- trastuzumab 96, 103, 135, 372–73,  
416, 420–21, 423–24, 428–31,  
437, 442–44, 568–70, 574–76,  
582–84, 586–91, 970
- trastuzumab conjugation 420, 423,  
427, 434, 437, 439
- trastuzumab decoration 569, 573–75,  
578, 580, 583, 586–88
- tumors, primary 22, 56
- vibrating sample magnetometer (VSM)  
844, 851, 868, 914
- vitamin E TPGS 32, 35, 38, 40–43, 50,  
87–89, 91, 112–17, 139–51, 196,  
231–40, 245–47, 249, 251–52,  
263–65, 268–70, 274–76, 278–79,  
281–82, 398, 421, 447–48,  
475–76, 497–99, 522–23, 549–50,  
562–63, 597, 624, 656, 658,  
681–82, 684, 695, 699–700,  
716–18, 721–24, 727–30, 759,  
788, 812, 866, 887, 890–91, 939
- VSM *see* vibrating sample  
magnetometer
- water-soluble polymers 348, 493, 618,  
643, 973