Index

1-ethyl-3-(3-dimethylaminopropyl) carbodiimide (EDC), 51–52, 61, 476

AA. *See* adjuvant arthritis.
Ab-Ag. *See* antibody-antigen.
absorption, 10–11, 24–27, 29–30, 36, 85, 90–91, 112, 134, 136–40, 207–8, 319, 321, 327–28, 349, 471–72
  cutaneous, 174
  direct, 208
  enhanced nasal, 65
  lymphatic, 81, 85
  maximum, 472
  nutrient, 116
  percutaneous, 359
  pulmonary, 214
  rapid, 322
  selective chemical, 173
  suboptimal, 138
  transepithelial, 273
acceptor peptide (AP), 480
acceptors, 97, 477, 483–85
acidic conditions, 77, 100, 151, 221, 317, 323, 353, 388
acidic environment, 13, 117, 138, 141, 208, 425
ACR. *See* American College of Rheumatology.
AD. *See* Alzheimer's disease.
adherens junction (AJ), 240
adjuvant arthritis (AA), 383
adjuvant-induced arthritis (AIA), 382–84, 387, 391–93, 396
adsorption, 115, 475, 493
agglomerates, 117, 218, 222, 509, 511
agglomeration, 470, 473, 526
aggregation, 61, 116–17, 154, 507, 512
  pH-triggered, 30
  spontaneous, 12
AgNP toxicity, 506, 508, 511
AIA. *See* adjuvant-induced arthritis.
AJ. *See* adherens junction.
all *trans*-retinoic acid (ATRA), 283, 325
alveolar macrophages, 201, 207–8, 211–13, 216–17, 220–21, 223
Alzheimer's disease (AD), 238, 301, 410
AM. *See* artemether.
American College of Rheumatology (ACR), 376–78, 398
amphiphilic, 15–16, 20, 46–47, 49, 54–60, 64, 66, 251, 256
AMR. *See* antimicrobial resistance.
angiogenesis, 298, 312, 379–80, 382, 384, 389, 411
animal models, 98, 386, 395
antibacterial, 45, 89, 122, 216
antibiotics, 88–89, 115, 127, 181, 204, 209, 216–17, 410
antibodies, 86, 273, 275, 279–80, 300, 302, 378, 389, 394, 421, 475, 478, 480, 484, 487–90
antibody-antigen (Ab-Ag), 478
anticancer, 59–60, 379, 314, 320, 323, 325–26, 329, 331–32, 491
anticancer drugs, 63, 66, 153–55, 249, 254, 270–72, 282, 303, 311–15, 317–21, 323–24, 326, 329–31, 333–35, 449–50, 452
antifungal, 92–93, 99, 181

antigens, 25, 84–86, 201, 203, 300–301, 478, 480, 487–88, 301
anti-inflammatory, 149–50, 186, 349–51, 359–60, 378, 392, 395–97, 516
anti-inflammatory drugs, 46, 58, 60, 66, 139, 147, 345–46, 377
antimicrobial, 92, 120, 125, 187, 506
antimicrobial agents, 77–78, 88, 98
antimicrobial resistance (AMR), 76–78, 83
antioxidant, 14, 17, 22, 186–87, 324, 516, 521, 523
antisense oligonucleotide (ASO), 291–93, 417–19
anti-TB drugs, 197–98, 200, 204–5, 208, 213–15, 217–18, 220–24
antitumor, 61, 64, 299, 417
antiviral, 90–91, 301, 415
AP. *See* acceptor peptide.
apoptosis, 89, 155, 246, 249, 253, 299–300, 419, 517, 521–22
area under the curve (AUC), 316, 321, 355, 357
Arg-Gly-Asp (RGD), 64, 66, 386, 391–92, 449, 452, 481–82
artemether (AM), 249, 261
arthritis, 384, 386–87, 389–91, 395
  adjuvant-induced, 382, 391, 402
  antibody-induced, 383
  collagen-induced, 387, 391
ASO. *See* antisense oligonucleotide.
ATRA. *See* all *trans*-retinoic acid.
AUC. *See* area under the curve.
AuNPs, 452–54, 483
autoimmune diseases, 115, 375–76
autophagy, 201, 257, 522

BA. *See* bioavailability.
bacillus Calmette–Guérin (BCG), 198, 203–4
bacteria, 77, 86–87, 89, 98, 100–101, 112–15, 118–19, 122–23, 125–26, 143–44, 157, 200–201
  colonic, 154
  commensal, 127
  exposed, 122
  gram-negative, 116, 124
  gram-positive, 88
  lactic acid, 125–26
  rod-shaped, 122
  undesired, 24
bacterial infections, 80, 88, 100, 379
bandgap, 471–72, 474, 479, 481
barriers, 24, 26–27, 78–79, 81, 84–85, 95, 97, 173–75, 206–8, 237, 239, 241, 317–18, 422, 432
basic fibroblast growth factor (bFGF), 240, 245, 250, 261
BBB. *See* blood–brain barrier.
BCG. *See* bacillus Calmette–Guérin.
BCS. *See* Biopharmaceutical Classification System.
BDS. *See* budesonide.
betamethasone sodium phosphate (BSP), 383–84
bFGF. *See* basic fibroblast growth factor.
bioavailability (BA), 9–13, 15–18, 20–21, 28–29, 76–78, 88, 91–92, 94–95, 100, 134–37, 139, 184, 248–49, 314, 316, 318–19, 321–28, 330–32, 334, 348–49, 351, 377
biocompatibility, 13, 16–17, 20–21, 45–46, 48, 82, 182, 214–15, 218, 242, 248, 253, 256, 328, 475
bioconjugation, 468, 474–76
biodegradability, 13, 45–46, 48, 82, 215, 248, 251

biodistribution, 10, 64, 97, 142, 147, 244, 250, 255, 274, 279, 294, 332, 414, 420, 453
bioengineering, 290, 297
bioimaging, 454, 467
biological barriers, 5, 78, 147, 252, 413, 415
biological environment, 55, 57, 147, 294, 493
biological fluids, 298, 412, 417–18, 420
biological systems, 24, 224, 256, 350, 470, 523
biomarkers, 273, 303, 481, 487–90, 500
biomaterials, 4, 46
biomedicine, 4, 62, 456
biomolecules, 270, 450–51, 475–78, 483, 489
Biopharmaceutical Classification System (BCS), 11, 36, 282, 317
biopharmaceuticals, 269, 273, 290–91
biopolymers, 13
biotechnology, 269–70, 290, 303
blood–brain barrier (BBB), 237, 239–46, 248–51, 254–57, 421
bovine serum albumin (BSA), 65, 211, 352
brain delivery, 5, 237, 241–42, 244, 246, 248–49, 251
brain drug delivery, 243–45, 248, 257
brain tumors, 239, 247, 249, 251, 254, 257, 421
breast cancer, 59, 187, 276, 286, 288–89, 331, 339, 452, 480–81
BSA. *See* bovine serum albumin.
BSCS. *See N*-benzyl-*NO*-succinyl.
BSP. *See* betamethasone sodium phosphate.
budesonide (BDS), 141, 143, 149–51
burst release, 24, 63–64, 145, 149, 151, 185, 218, 329, 350

CAC. *See* critical aggregation concentration.
Caco-2, 36, 58, 65, 81, 91, 96–97, 122, 150, 323–24, 328, 356, 517, 519
cancer, 5, 62–63, 269–73, 275–76, 282–84, 287–91, 299–300, 303, 312, 411, 417, 420–21, 487–88, 491–92, 506
cancer cells, 57, 59, 153, 155–57, 271, 273, 299–300, 314–15, 321, 331, 362, 411, 417, 477, 491–92
cancer stem cells (CSCs), 270, 278–80, 298–99, 303
cancer therapy, 271, 299, 301, 303, 313, 506
cancer treatment, 271–72, 294, 311, 447–48, 450
carbon dots (CDs), 248, 252, 256–57, 456, 468–70, 481, 493
carbon nanotubes (CNTs), 119, 122, 247–48, 256–57, 320, 327, 360–61, 456–57, 487
  multiwalled, 122
  oxidized, 487
  single-walled, 122
cardiovascular (CV), 346, 377
carnauba wax solid lipid nanoparticles (CSLNs), 123
carriers, 26, 28, 56, 58–61, 150–52, 210, 213–15, 243–45, 250, 253–54, 295–96, 328, 355, 358, 490–91
CB. *See* conductance band.
CD. *See* cyclodextrin.
CDs. *See* carbon dots.
cell apoptosis, 517
cell death, 312, 411, 520, 523
  apoptotic, 515
  autophagic, 522

cell-penetrating peptides (CPPs), 28, 360, 414, 424–26
cell-to-cell communication, 299
cellular interactions, 380, 384, 393, 508
cellular uptake, 12, 21, 29, 81, 213, 220, 275, 279, 324, 412–13, 455, 511
cell uptake, 294, 323, 381, 445
cell viability, 81, 248, 510–11, 521, 523
central nervous system (CNS), 238–42, 244–45, 249–51, 253, 255, 257
CFUs. *See* colony-forming units.
chemokines, 378–80, 385–86, 393–94, 518–19
chemotherapy, 200, 204, 239, 276, 279, 313, 315, 317, 320
chitosan, 14, 19, 30, 45–56, 58–62, 64–66, 154, 156–57, 187–88, 212, 214–15, 321, 323, 348–49, 354
chitosan nanocarriers, 46
chitosan nanoparticles, 65, 120–22, 124, 156, 188, 215, 323, 356, 387, 396
chlorotoxin (CTX), 414, 421
cholesterol, 25–26, 89, 91, 175, 207, 217–19, 414, 416, 418, 423–24
CIA. *See* collagen-induced arthritis.
circulation, systemic, 10–11, 24, 27, 30, 77, 172, 358, 360
circulation time, 47, 57, 243, 246, 248, 254, 324, 351, 381
class I, 11, 282
class II, 11, 14–17, 21–22, 24, 37, 282, 348
class III, 11
class IV, 11, 14–17, 20–22, 24, 37, 317
clinical trials, 5, 84, 91, 101, 203–4, 222, 280, 290–91, 294, 413
clustered regularly interspaced short palindromic repeat (CRISPR), 414, 430–32, 439
CMC. *See* critical micelle concentration.
CNS. *See* central nervous system.
coadministration, 90, 154, 184, 319
codelivery, 4, 12, 242
coencapsulation, 83, 444, 446, 450, 454
coherent resonance energy transfer (CRET), 477
collagen-induced arthritis (CIA), 383, 387–93, 395–97
colony-forming units (CFUs), 93, 99, 114, 143
colorectal cancer, 134, 138, 153, 155, 284, 288, 333
computed tomography (CT), 450, 482
conductance band (CB), 471, 481, 520
controlled release, 4, 46, 63, 85–86, 146–47, 181–82, 187, 243, 324, 354, 422, 452, 490
copolymers, 13, 16, 47, 57, 59, 141, 144–46, 151, 154, 187, 216, 353, 455
COX. *See* cyclooxygenase.
COX-1, 346
COX-2, 346, 520, 524
CPPs. *See* cell-penetrating peptides.
CRET. *See* coherent resonance energy transfer.
CRISPR. *See* clustered regularly interspaced short palindromic repeat.
critical aggregation concentration (CAC), 56, 58
critical micelle concentration (CMC), 16, 56, 59–60

CSLNs. *See* carnauba wax solid lipid nanoparticles.
CSCs. *See* cancer stem cells.
CT. *See* computed tomography.
CTX. *See* chlorotoxin.
CUR. *See* curcumin.
curcumin (CUR), 21–22, 24, 141, 143, 150, 188, 245–46, 250, 253
CV. *See* cardiovascular.
cyclodextrin (CD), 144, 252, 360
cyclooxygenase (COX), 346, 515
cytochrome c, 478, 521
cytochrome P450, 90, 312, 318, 334
cytokines, 378–79, 381, 389, 393–94, 396–97, 416, 513, 515–20, 523
cytotoxicity, 16, 21, 62–63, 65, 81, 91, 95, 155, 157, 215, 221, 324, 327–28, 503, 510–13
  low, 59, 101, 220, 256, 356

DCA-PCCS. *See* deoxycholic acid–phosphorylcholine chitosan.
DCP. *See* dicetylphosphate.
degradation, 57, 77–78, 81, 84, 134–36, 155, 157, 317, 319, 381, 410, 412, 414–15, 417–19, 426–27
  enzymatic, 139, 153
  lysosome, 27–28, 425
  nuclease, 323, 414–15, 417–18
degree of substitution (DS), 50–52, 58, 60–63, 65
dendrimers, 246, 248, 252–53, 257, 325–26, 348–49, 352, 361, 387, 449–50
deoxycholic acid–phosphorylcholine chitosan (DCA-PCCS), 59–60, 65–66
detoxification, 115, 517
dextran sulfate sodium (DSS), 142–43, 145, 149–51
dialysis, 35, 60–61, 96
dicetylphosphate (DCP), 211, 217, 219
differential scanning calorimetry (DSC), 32
diffusion, 26, 57, 79, 112, 202, 207, 209, 213, 278, 317, 330, 358
  passive, 26–27, 29
dioleoylphosphatidylethanolamine (DOPE), 394–95, 414, 419, 426
dioleoylphosphatidylglycerol (DOPG), 419
dioleoyltrimethylammoniumpropane (DOTAP), 394, 418, 421, 423
disease, 4–5, 114–15, 133–34, 138–41, 197–202, 238–39, 241, 269–73, 290, 375–77, 380, 393, 409–11, 415, 417, 428–29, 444–45
disease diagnosis, 254, 376, 489
disease-modifying antirheumatic drugs (DMARDs), 375, 377–78, 395, 398
disease progression, 376–77, 379, 396, 410
disorders, 87, 257, 409–11, 415
DLS. *See* dynamic light scattering.
DMARDs. *See* disease-modifying antirheumatic drugs.
DNA, 78, 86, 118–19, 128, 291, 378, 411, 418, 424, 426, 428–30, 468, 478, 484–88, 514–16, 522–23
DNA damage, 246, 254, 279, 517, 521–23
donor/acceptor pairs, 487
donors, 97, 477, 483, 485
DOPE. *See* dioleoylphosphatidylethanolamine.
DOPG. *See* dioleoylphosphatidylglycerol.
dosage, 10–11, 37, 93, 101, 125, 135, 137, 139, 141, 146, 153, 211, 318, 348, 351, 509

dose, 11, 77–78, 91–92, 94–95, 99–100, 121–22, 124–26, 216, 254–57, 300, 315–16, 318, 348, 377–78, 382, 420
dose index, 327
dose-limiting toxicities, 272, 275
DOTAP. *See* dioleoyltrimethylammoniumpropane.
double emulsion, 62
double strand break (DSB), 431–32, 522
downregulation, 323, 377, 387, 394, 397, 421, 521
DOX. *See* doxorubicin, 55, 60–63, 184, 488
doxorubicin (DOX), 55, 60–63, 184, 276, 282, 285, 313, 323, 332, 448–52, 455, 488, 491
DPIs. *See* dry powder inhalers.
drug absorption, 10, 12, 29, 36, 172, 317–18, 351
drug accumulation, 47, 147, 220, 323, 357–58
drug carriers, 4, 51, 66, 82–83, 182, 210, 249, 490
drug concentrations, 21, 27, 135, 147, 151, 153, 205, 208, 219, 244, 315
drug delivery, 4–5, 51, 55–56, 59–60, 133–41, 143–46, 157–59, 210–13, 220–23, 241–43, 253–55, 300, 445–46, 448, 490–91
drug delivery system (DDS), 4, 49, 54, 58–59, 62, 92–96, 100, 137–38, 189, 242–43, 249, 257, 313, 320–22, 347–48
drug–drug interactions, 318–19
drug encapsulation, 56, 242
drug entrapment, 13–14, 20
drug interactions, 57, 185, 313
drug loading, 15–18, 20, 23, 32–33, 59–60, 62–63, 84, 179, 183, 242, 300, 350, 490
drug nanocarriers, 26, 178
drug nanocrystals, 213, 221–22, 321
drug nanosystems, 25
drug NPs, 221
drug penetration, 182–84, 360–61
drug permeation, 185, 219, 329, 357, 359
drug pharmacokinetics, 177, 347
drug release, 58, 60, 62, 83–84, 137–41, 145, 147, 151, 153–54, 213–14, 216–18, 220–21, 349–50, 353–56, 359–61
  biphasic, 24, 62
  controlled, 13, 20, 82, 181, 187, 210, 351, 355
  sustained, 77, 150–51, 215, 218–20, 326, 349, 351, 355
drug resistance, 204, 299
drugs
  antimicrobial, 75–78, 83, 87, 188
  antiparasitic, 94–95
  hydrophilic, 18, 55, 76, 83, 137, 187, 216, 330
drug solubility, 29, 35, 82, 242, 319
drug transport, 17, 180, 244
dry powder inhalers (DPIs), 209–10, 222
DS. *See* degree of substitution.
DSB. *See* double strand break.
DSC. *See* differential scanning calorimetry.
DSS. *See* dextran sulfate sodium.
dynamic light scattering (DLS), 31, 511

ECPs. *See* extracellular products.
EDC. *See* 1-ethyl-3-(3-dimethylaminopropyl) carbodiimide.

EE. *See* encapsulation efficiency.
efficacy, 84–85, 94–95, 99–101, 142–43, 147, 149–50, 203–4, 208–9, 251–52, 280–81, 296–97, 321–26, 328–30, 345–46, 444–45
EGF. *See* epidermal growth factor.
EGFR. *See* epidermal growth factor receptor.
egg phosphatidylcholines (EPC), 217–19
electron–hole pair, 471
encapsulation, 14–15, 20, 46–47, 55, 59–60, 65, 252, 254, 256, 325, 330, 348–51, 443–45, 470, 474
encapsulation efficiency (EE), 14, 17, 22, 56, 62–63, 65, 249–50, 329–30, 355
endocytic pathways, 30, 422–23, 425
endocytosis, 26–28, 211, 244, 249, 414, 423–25, 437, 508
enhanced permeability and retention (EPR), 56–57, 149, 275, 278, 382, 384, 391
enterotoxins, 64, 300, 489
entrapment efficiency, 16, 23, 32–33, 61–62, 249–50, 252, 349
enzymes, 25, 28, 84, 86, 112, 116–18, 138–39, 141, 143–44, 317–18, 417, 419, 483–84, 486, 513–14
EPC. *See* egg phosphatidylcholines.
epidermal growth factor (EGF), 423, 480
epidermal growth factor receptor (EGFR), 280, 484
EPR. *See* enhanced permeability and retention.
ERK. *See* extracellular signal–regulated kinase.
Eudragit®, 141–46, 150–51, 153–54, 156–57, 350, 355–56
EULAR. *See* European League Against Rheumatism.
European League Against Rheumatism (EULAR), 376–78
excipients, 14, 22, 57, 82, 144, 315, 318, 321, 327–28
exposure, 86, 94, 123–24, 126–28, 199, 257, 295, 311–12, 317, 506, 508, 510, 512, 516, 524
extracellular products (ECPs), 64
extracellular signal–regulated kinase (ERK), 515, 517, 524

FA. *See* folic acid.
FBS. *See* fetal bovine serum.
FDA. *See* Food and Drug Administration.
fetal bovine serum (FBS), 508
FISH. *See* fluorescence in situ hybridization.
FITC. *See* fluorescein isothiocyanate.
fluorescence in situ hybridization (FISH), 477–78
fluorescein isothiocyanate (FITC), 87, 156, 253, 257, 262, 449, 478
fluorescence microscopy, 249, 427–28
fluorescence spectroscopy, 56
fluorescent proteins, 429, 454, 468, 484
fluoroimmunoassay, 489
fluorophore, 142, 144, 325, 458, 468, 484
folate receptors (FRs), 155, 352, 386–87
folic acid (FA), 155, 167, 352, 355, 386–88, 450
Food and Drug Administration (FDA), 5, 11, 187, 242, 274–75, 296, 299, 348, 448

Förster resonance energy transfer (FRET), 455, 468, 477, 483–87, 494
FRs. *See* folate receptors.
free drug, 16, 20–21, 35, 37, 60, 63, 89, 150–51, 155, 184–85, 188, 215–16, 218–21, 323–27, 388
FRET. *See* Förster resonance energy transfer.
full width at half maximum (FWHM), 471
fungal infections, 91, 93, 99
FWHM. *See* full width at half maximum.

gas exchange, 202, 205–6
gastric release, 346, 348, 354, 356, 361
gastrointestinal (GI), 10, 12, 19, 36, 65, 112, 134, 312, 317–18, 321, 323, 326, 329–30, 346, 349
gastrointestinal (GI) tract, 10–11, 13, 18, 20, 24–25, 29–30, 76, 80–81, 84–87, 93–98, 100–101, 112–16, 135–41, 144, 146–48, 153–54, 212, 312, 317–19, 322, 326–27, 330–31, 334
gavage, 119, 124–25
GCs. *See* glucocorticoids.
GDNF. *See* glial-derived neurotrophic factor.
gene correction, 430
gene delivery, 270, 290–91, 394–96, 411, 427
gene expression, 124, 279, 290, 409–11, 420, 429–30
generally recognized as safe (GRAS), 82
gene silencing, 290, 394–96, 426, 447
gene therapy, 5, 159, 273, 387, 394, 409, 411, 413–14, 419, 421, 431
genetic diseases, 430, 432
gene transfer, 394, 397
genome correction, 414
genome editing, 431–32
GFP. *See* green fluorescent protein.
GI. *See* gastrointestinal.
glial-derived neurotrophic factor (GDNF), 240
glioblastoma, 239, 250, 421, 449–50
gliomas, 238, 247, 249, 254, 256, 290, 421
glucocorticoids (GCs), 375, 377–78, 382
GMPs. *See* good manufacturing practices.
gold nanoparticles, 213, 223, 248, 255, 257, 389, 392, 450, 452
good manufacturing practices (GMPs), 294
GQDs. *See* graphene quantum dots.
graphene quantum dots (GQDs), 468, 493
GRAS. *See* generally recognized as safe.
green fluorescent protein (GFP), 429, 439, 468
gut microbiota, 111, 115–16, 118–20, 122–28
gut-on-a-chip, 97

HA. *See* hyaluronic acid.
HBB. *See* human hemoglobin β.
HBD. *See* human hemoglobin δ.
HBV. *See* hepatitis B virus.
HCV. *See* hepatitis C virus.
HDFs. *See* human dermal fibroblasts.
health care, 4, 76, 118, 272, 295, 297, 316, 444, 493
HeLa, 63, 424, 429, 480
hepatitis B virus (HBV), 488
hepatitis C virus (HCV), 488
HepG2, 95, 162, 509–10, 516, 527

HER2. *See* human epidermal growth factor receptor 2.
herpes simplex virus (HSV), 99, 421
HGC. *See* hydrophobically modified glycol chitosan.
high-pressure homogenization, 21, 183
high-resolution miniendoscopy, 142
high-throughput monitoring, 489
high-throughput screening, 11, 468
HIV. *See* human immunodeficiency virus.
Hodgkin and Reed-Sternberg (HRS), 480
homeostasis, 114, 239, 385, 522
HRS. *See* Hodgkin and Reed-Sternberg.
HAS. *See* human serum albumin.
HSV. *See* herpes simplex virus.
human dermal fibroblasts (HDFs), 515, 520
human epidermal growth factor receptor 2 (HER2), 279, 285, 480–81, 491
human health, 4, 114, 128, 295, 506, 523
human hemoglobin β (HBB), 431
human hemoglobin δ (HBD), 431
human immunodeficiency virus (HIV), 90, 101, 199–200, 202, 212, 276, 301–2, 425, 438, 488–89
human serum albumin (HSA), 414, 418
human umbilical vein endothelial cells (HUVECs), 516
HUVECs. *See* human umbilical vein endothelial cells.
hyaluronic acid (HA), 156–57, 386, 388–90
hydrogel, 92, 152, 178, 325, 354, 359–61
hydrophilic, 15, 46, 55, 57, 80, 173–75, 180–81, 189, 210, 242–43, 248, 251–52, 324, 416, 474
hydrophobic, 15–16, 46, 50–51, 55–57, 59, 64–65, 86, 180, 210, 251–52, 330, 454–55
hydrophobically modified glycol chitosan (HGC), 64, 66
hydrophobic drugs, 15, 37, 46, 55, 57–59, 61, 63–64, 187, 242
hydrophobic interactions, 11, 50, 80, 118, 476
hydrophobicity, 29, 94, 123, 213, 244, 322, 474
hygroscopicity, 209
hyperresponsiveness, 517

IBD. *See* inflammatory bowel disease.
ICR. *See* imprinting control region.
IHC. *See* immunohistochemistry.
IL. *See* interleukin.
IL-1, 378, 380, 382, 384–85, 387, 393–95, 516, 518–19, 527
IL-2, 301, 396
IL-4, 393, 517–19
IL-5, 517
IL-6, 240, 378, 380, 382, 389–90, 393–96, 515–16, 518–19
IL-8, 515, 518–19
IL-10, 152, 393, 397, 518–19
IL-12, 293, 393, 518–19
IL-13, 517
IL-15, 396
IL-16, 385
IL-17, 396
IL-18, 395
immune cells, 81, 85–86, 378–79, 385, 394, 423, 514, 518
immune responses, 84–86, 94, 201, 203, 241, 378–79, 412, 415, 431, 435

immune system, 30, 57, 81, 86, 97, 115, 174, 380, 384, 410, 414–17, 445, 513, 523–24
immunity, 85, 198, 520
immunization, 85–86, 157
immunoassays, 477, 488–89
immunodeficiency, 90, 325, 409
immunohistochemistry (IHC), 478, 481
immunotherapy, 204, 302, 313
imprinting control region (ICR), 333
infections, 77–80, 84, 87, 89–92, 94–95, 99–100, 115, 157–58, 177, 197–202, 204, 211–13, 315, 317, 410–12
infectious diseases, 5, 75–78, 87, 94, 101, 211
inflammation, 147, 149, 152, 246, 346, 351, 353, 358, 376–77, 379–82, 384–85, 387–89, 391–92, 394–97, 515–17
inflammatory bowel disease (IBD), 115, 134, 140–41, 143, 146–50
inflammatory cells, 149, 201, 379, 384, 393
inflammatory diseases, 346, 356, 379, 384, 386
inflammatory process, 238, 385, 513–14, 520, 524
inflammatory response, 221, 377, 379, 383, 393, 515–16, 518–19
INH. *See* isoniazid.
inhibition, 26, 29–30, 61, 81, 90, 114, 188, 249–50, 346, 357, 378–79, 384, 395
inhibitors, 249, 319, 346, 410, 421–22, 424, 478, 516
initial burst, 62, 349, 351, 355
interleukin (IL), 240, 292, 378, 515, 524
internalization, 5, 10, 28, 30, 59, 213, 223, 323, 414, 423–24, 426, 522
  cellular, 19, 244, 257
  nuclear, 422, 428
intestinal absorption, 26, 323, 329, 332
intracellular delivery, 28, 80, 388, 422
intranasal delivery, 241, 250, 253
intravenous, 243, 245, 248, 251, 253–54, 311, 314–17, 319, 322, 325, 332–33, 353–54, 382, 384, 420–21
in vitro cytotoxicity, 16, 339
in vitro drug release, 34, 62–63, 329, 354
in vitro models, 29–30, 36, 97, 245
in vitro release, 34, 91–92, 145, 359
in vivo assays, 16, 20–21, 37, 250, 256, 477
in vivo bioavailability, 38, 324, 349
in vivo biodistribution, 64, 154
in vivo delivery, 419
in vivo efficacy, 13, 94, 99, 143
in vivo imaging, 257, 454, 468, 493
in vivo models, 96–98, 101, 111, 159, 214, 295
in vivo release, 348–50
iron oxide nanoparticles (IONPs), 450–54, 457
isoniazid (INH), 198–200, 204, 215–16, 218–20

joint damage, 375–76, 396
joint destruction, 377, 379, 385, 389, 393
junctions
  adherens, 240
  cellular, 178
  tight, 30, 48, 237

keratinocytes, 173, 511, 518
ketoprofen skin-permeating nanogel (KP-SPN), 188
killing effect, 492

Koch, Robert, 198
KP-SPN. *See* ketoprofen skin-permeating nanogel.
Kunming mice model, 326

lateral flow immunochromatographic tests, 478, 494
lateral flow lipoarabinomannan (LF-LAM), 203
lateral flow test strip (LFTS), 489–90
LDC. *See* lipid–drug conjugate.
leakage, 19, 248, 389, 454, 474, 493, 514
LF-LAM. *See* lateral flow lipoarabinomannan.
LFTS. *See* lateral flow test strip.
life expectancy, 238, 376
ligand–receptor interactions, 244
ligands, 210–12, 219, 279–80, 352–53, 379, 386, 390, 414, 418–21, 423–24, 451, 454, 470, 474–76, 480
line probe assays (LPAs), 203
lipid-based delivery systems, 78, 87, 101, 416
lipid-based formulations, 24
lipid-based nanocarriers, 13, 17, 20, 22, 27, 30, 33, 149
lipid-based NPs, 82–83, 87–88, 95, 213
lipid carriers, 355, 357
lipid–drug conjugate (LDC), 82, 319
lipid nanocapsules (LNCs), 330, 357
lipid nanocarriers, 17–18, 21, 24, 30, 86
lipid nanoparticles, 81–82, 87–88, 92–93, 96–97, 100, 182–85, 220–21, 224, 248–49, 257, 319, 355, 357, 359–61, 387, 446–47
lipids, 17–18, 20–25, 79, 81–83, 86, 179–80, 183, 185, 217–18, 347, 349, 357–58, 413, 415, 446–47
  liquid, 20–24, 83, 89, 92–93, 220–21, 249, 326–29, 359
  solid, 20–23, 89, 92–93, 220, 249, 328–29, 359
lipophilic drugs, 16–18, 33, 35, 137, 180, 326
lipopolysaccharide (LPS), 81, 116, 150
liposomal formulations, 89, 93, 95, 217, 248, 392
liposomes, 18–20, 82–83, 85–93, 95, 179–82, 217–19, 248–49, 273–74, 330, 348–49, 353, 357–58, 382–84, 395, 455
liquid chromatography, high-performance, 98
LNCs. *See* lipid nanocapsules.
loading capacity, 15, 22, 55, 57–58, 65, 83, 86, 183, 220, 249, 329–30, 350, 491
low toxicity, 58, 63, 83, 89, 182, 214–15, 251, 256, 316, 453
LPAs. *See* line probe assays.
LPS. *See* lipopolysaccharide.
luminescence, 99, 451, 473
lung cancer, 275–76, 282, 288–89, 489
lymphatic drainage, 57, 382
lymphatic system, 27, 29, 177, 201
lyophilization, 32, 135, 218, 327
lysosomes, 28, 353, 425–26, 514, 522

macrophages, 25, 85, 95, 207, 212, 215, 380, 382, 384–88, 391–92, 394, 396, 510–11, 513–15, 518–20
  activated, 149–50, 352, 355, 379, 386, 388–89
magnetic nanocapsules, 62

magnetic nanocarriers, 353
magnetic nanoparticles (MNPs), 213, 247–48, 254, 257, 354, 389, 444
magnetic resonance imaging (MRI), 254, 444, 450–52, 458, 482, 491
major histocompatibility complex (MHC), 201, 301–2
MAPK. *See* mitogen-activated protein kinase.
maleylated bovine serum albumin (MBSA), 211, 219
matrix metalloproteases (MMPs), 380, 384, 389, 395–96
MBC. *See* minimum bactericidal concentration.
MBSA. *See* maleylated bovine serum albumin.
mediators, 513, 515, 520, 523–24
  inflammatory, 378–80, 384, 386, 394, 515
medicines, 46, 48, 115, 210, 224, 270–71, 273, 275, 281, 290, 297, 303, 346, 443–45, 458–59
  personalized, 270–71, 281, 296–98, 303
mesoporous silica nanoparticles (MSNs), 350
messenger RNA (mRNA), 297–300, 412, 416–18, 422, 427
metastasis, 275, 279, 312, 331, 411
methotrexate (MTX), 155–56, 246–47, 251–52, 287, 377–78, 383, 387–88, 390–92
MHC. *See* major histocompatibility complex.
MIC. *See* minimum inhibitory concentration.
micellar nanoparticles, 187, 348
micellar systems, 16, 55, 58–59
micelles, 15–17, 47, 51, 55–56, 58–63, 65, 82, 175, 319, 324–25, 332, 354–55, 474, 483, 490
  polymer-based, 47, 55–56, 58, 60, 63, 66
microbiota, 112, 114–16, 119, 123–27, 143, 154
microcapsules, 154–55
microemulsions, 185–86, 359
microenvironments, 17, 353
micro-RNA (miRNA), 292–93, 297, 300, 302, 410, 412, 422, 427
MIP. *See* molecular imprinted polymer.
MIP-2, 518–19
minimum bactericidal concentration (MBC), 98–99
minimum inhibitory concentration (MIC), 98–99, 118
miRNA. *See* micro-RNA.
mitochondrial permeability transition pore (MPTP), 521
mitochondria-targeting sequence (MTS), 414, 430
mitogen-activated protein kinase (MAPK), 517, 523
MMPs. *See* matrix metalloproteases.
MNPs. *See* magnetic nanoparticles.
molecular imprinted polymer (MIP), 478, 524
morbidity, 76, 91, 94, 271
mortality, 76, 91, 94, 270, 377
mortality rates, 153, 198, 271–72
MPTP. *See* mitochondrial permeability transition pore.
MRI. *See* magnetic resonance imaging.
mRNA. *See* messenger RNA.
MSNs. *See* mesoporous silica nanoparticles.
MTB. *See Mycobacterium tuberculosis*.
MTS. *See* mitochondria-targeting sequence.
MTT assay, 63
MTX. *See* methotrexate.

mucosal immunization, 157
multicolor fluorescence microscopy, 487
multi-drug-resistant, 200, 204
multiwalled carbon nanotube (MWCNT), 122
mutations, 77, 312, 411, 428–29, 431
  genetic, 77
  single-nucleotide polymorphism, 488
MWCNT. *See* multiwalled carbon nanotube.
Mycobacterium tuberculosis (MTB), 198, 203

nanobased formulations, 5
nanobiosensor, 484
nanocapsules, 13, 57, 330
nanocarbons, 456–57
nanocarriers, 10, 12–14, 24–35, 37, 140–41, 159, 179–83, 213–14, 242–43, 349–58, 360–62, 381, 386, 394, 444–45
  polymeric, 13–15, 20, 33, 181, 183, 214, 360, 381
nanocomplexes, 5, 65, 396
nanocomposite, 490
nanocrystals, 5, 221–22, 320–22, 451, 454, 467–71, 473–77, 479, 492
nanoDDS. *See* nanotechnology-based drug delivery system.
nanodelivery systems, 4–5, 197–98, 205, 224, 238, 345, 347–48, 350–54, 356–58, 361–62
nanodiamonds, 331, 456
nanoemulsions, 5, 87, 90, 326–27, 353, 357, 359
nanoformulations, 9, 20, 35
nanomaterials, 127, 255, 295–96, 467, 469, 472, 475, 487, 493, 505
nanomedicine, 5, 135, 159, 172, 269–71, 273–76, 278, 280–81, 294–97, 299, 303, 347, 351, 362, 443–46
nanoparticles (NPs), 4, 64–66, 76–85, 90–101, 115–28, 140–45, 149–59, 171–72, 174–76, 178–80, 187–89, 210–17, 219–25, 242–47, 250–51, 253–55, 278–81, 345, 347, 414, 416, 420, 423, 445–53, 455–59, 505–9
nanoparticles-in-microsphere oral system (NiMOS), 152
nanoprobes, 254, 483, 486
nano-spray-drying, 158
nanostructured lipid carrier (NLC), 22–24, 41–42, 82–83, 92–93, 108–9, 179, 182–85, 192–93, 211, 220–21, 249–50, 329, 355, 357, 359, 370–72, 446
nanosuspensions, 221–22
nanosystems, 4–5, 10, 15, 20, 25, 56, 145, 211, 213, 216, 224, 242, 248, 254, 256–57
nanotechnology, 4–6, 133, 135, 158, 171–72, 210–12, 224, 237, 241, 269, 273, 295–96, 319–20, 443–45, 459
nanotechnology-based drug delivery system (nanoDDS), 311–12, 319–21, 269–70, 273–75, 278, 282, 290–91, 295, 301, 303, 331, 334
nanotechnology-based systems, 134, 147, 149–50, 157
nanotherapeutics, 37, 351
nanotherapy, 375, 381, 397
nanotoxicology, 295
N-benzyl-*NO*-succinyl (BSCS), 58, 60
near infrared (NIR), 451, 454, 457–58, 469, 479, 481–82
nebulization, 209, 217–18, 220

air-jet, 217
nebulizers, 209, 218, 222
neuroinflammation, 253, 255, 519
neurological disorders, 237–38, 256
neurotoxicity, 254–55
NF-κB. *See* nuclear factor kappa B.
NHDF. *See* normal human dermal fibroblast.
NHS. *See* *N*-hydroxysulfosuccinimide.
N-hydroxysulfosuccinimide (NHS), 52, 61, 476
NiMOS. *See* nanoparticles-in-microsphere oral system.
NIR. *See* near infrared.
NLC. *See* nanostructured lipid carrier.
NLS. *See* nuclear localization sequence.
N-naphthyl-*N*-*O*-succinyl chitosan (NSCS), 58, 60
NOCS. *See* *N*-octyl-*O*-sulfate chitosan.
N-octyl-*N*-arginine chitosan (OACS), 65–66
N-octyl-*N*-*O*-succinyl chitosan (OSCS), 58, 60
N-octyl-*O*-sulfate chitosan (NOCS), 61, 63
nonimmunogenic, 255, 351, 418
noninvasive, 9, 178, 208, 242, 249–50
noninvasiveness, 177, 333
non-steroidal anti-inflammatory drugs (NSAIDs), 345–57, 359–62
normal human dermal fibroblast (NHDF), 520
NP. *See* nanoparticle.
NP toxicity, 81, 247, 255, 508
NSAIDs. *See* non-steroidal anti-inflammatory drugs.
NSCS. *See* *N*-naphthyl-*N*-*O*-succinyl chitosan.
nuclear factor kappa B (NF-κB), 388–90, 428, 515–17, 525
nuclear localization sequence (NLS), 414, 424, 427–28, 430
nucleic acid delivery systems, 413, 416, 420, 424–25, 429, 432
nucleic acids, 378, 394, 409–11, 413, 415–22, 424–30, 486–87

OACS. *See* *N*-octyl-*N*-arginine chitosan.
OCH. *See* oleoyl-chitosan.
OCMCS. *See* oleoyl-carboxymethy-chitosan.
oil-in-water (O/W), 87, 185
oleoyl-carboxymethy-chitosan (OCMCS), 61, 64, 66
oleoyl-chitosan (OCH), 62–63
oligonucleotides, 410, 412–13, 416–18, 475, 486–87
optical properties, 452, 454, 456–57, 468, 471, 474, 477, 479, 483
oral absorption, 15, 25, 30, 76, 349, 351
oral administration, 11, 77–79, 81–82, 86–88, 91–96, 142–43, 149, 151–54, 156–57, 311–12, 314–15, 317–20, 323–24, 326–34, 354–55
oral bioavailability, 10, 12, 17, 19, 21, 29–30, 37, 88, 90, 252, 322–23, 325, 328–29, 332, 334
oral chemotherapy, 10, 311–12, 315–16, 318–22, 324, 326, 330
oral delivery, 10, 14, 17, 19, 22–25, 81, 87, 111, 152, 157, 159, 319, 323–24, 326, 330
oral route, 9–10, 24, 81, 84, 88, 100–101, 133–34, 153, 157, 208, 224, 315
oral vaccines, 84–85, 87, 157

OSCS. *See N*-octyl-*N*-*O*-succinyl chitosan, 58, 60
O/W. *See* oil-in-water.
oxidative stress, 127, 238, 246, 254, 324, 516–17, 522

paclitaxel (PTX), 14–17, 21–22, 55, 60–61, 249, 186, 245, 247, 249–50, 254, 275–76, 280, 282, 314, 321–22, 328, 330–31
palmitoyl chloride (PC), 62, 217–19, 416
PAMAM. *See* polyamidoamine.
parasites, 77, 87, 94–95, 99–100, 157
parasitic diseases, 94–95, 140
Parkinson's disease (PD), 238, 410
pathogens, 77, 84, 88, 91, 99–100, 114, 119, 123, 157, 178, 200–202, 423
patient compliance, 9–10, 134, 172, 205, 223, 315
PBS. *See* phosphate-buffered saline.
PC. *See* palmitoyl chloride.
PCA. *See* polyacrylate.
PCL. *See* poly(ε-caprolactone).
PCR. *See* polymerase chain reaction.
PD. *See* Parkinson's disease.
pDNA. *See* plasmid DNA.
PDT. *See* photodynamic therapy.
PEG. *See* poly(ethylene glycol).
PEGylation, 30, 274, 382, 414, 416
PEI. *See* poly(ethylene imine).
penetration, 64, 77, 79–80, 85, 118, 174–75, 177–178, 180, 184, 186–87, 241, 244, 358–59, 361
penetration enhancer–containing vesicle (PEV), 358
peptides, 28, 64, 66, 84, 86, 91, 100, 135, 157–59, 291, 413–14, 424–25, 427, 474–75, 480–81
  cell-penetrating, 28, 360, 425
permeability, 5, 10–11, 35–36, 77–80, 88, 177–78, 240–41, 244, 246, 250, 252–53, 316–18, 323, 325–26, 328
permeation, 19, 26, 36, 48, 159, 179, 181–82, 185, 192, 215, 243, 245, 250, 252, 357–59
PETIM. *See* poly(propyl ether imine.
PEV. *See* penetration enhancer–containing vesicle.
Peyer's patches, 25–26, 29, 81, 85, 98
Pgp. *See* P-glycoprotein.
P-glycoprotein (Pgp), 12, 30, 90, 140, 244, 250, 279, 318, 321–24
phagocytosis, 25, 28, 30–31, 201, 211, 423, 508, 513
pharmaceuticals, 346, 362
pharmacokinetics, 10, 20, 87, 94, 96–97, 99, 147, 221, 224, 251–52, 273, 318–19, 491
phosphate-buffered saline (PBS), 34, 416
phospholipids, 13, 17–18, 20, 79, 180, 207, 256, 330, 474
photodynamic therapy (PDT), 457–58, 468, 491–92
photoluminescence, 472, 479, 483
pH-sensitive NPs, 150–51, 154, 323
physicochemical properties, 25–26, 28, 46–47, 85, 122, 140, 159, 174–75, 213, 334, 350, 410, 506, 509
phytochemicals, 246, 253–54
PLA. *See* poly(d,l-lactide).
PLA. *See* poly(lactic acid).
PLA. *See* polylactide.
PLA. *See* poly(L-lactide).
polylactide (PLA), 13, 15
poly(lactic acid) (PLA), 152, 251, 383

poly(d,l-lactide) (PLA), 274
poly(L-lactide) (PLA), 448
plasmid DNA (pDNA), 157, 323, 397, 410, 418, 422, 424, 427–31
PLGA. *See* poly(d,l-lactide-co-glycolide).
PLGA. *See* poly(lactic-co-glycolic) acid.
PLP. *See* prednisolone phosphate.
Pluronic F68, 82, 94
polyacrylate (PCA), 13, 15, 187, 214
polyamidoamine (PAMAM), 253, 326, 349, 387, 449–50
poly(d,l-lactide-co-glycolide) (PLGA), 85, 187, 214, 350
poly(ε-caprolactone) (PCL), 13, 15, 39, 63, 188, 325, 354, 447–48, 455
poly(ethylene glycol) (PEG), 15, 30–31, 80, 85, 217–18, 243, 325, 354–55, 354–55, 381–84, 390–91, 416, 419–20, 449–50, 455, 474, 511–13
poly(ethylene imine) (PEI), 355, 394, 396, 414, 419, 424–25, 428, 455
poly(lactic-co-glycolic) acid (PLGA), 13–14, 85, 142–43, 147, 150, 157, 188, 214–16, 246, 251, 280, 324, 350, 355, 360–61, 383, 420, 447–48, 491
poly(*N*-vinyl pyrrolidone) (PVP), 15, 350, 366, 509–11, 514
polydispersity index, 21, 31, 61
polymerase chain reaction (PCR), 118–19
polymeric micelles, 15–16, 55, 66, 211, 320, 324–25, 348, 351, 354
polymeric nanoparticles, 13–15, 211, 213–16, 248, 251, 320, 322–24, 348, 350, 355, 357, 360–61, 382–83, 390–91, 447–48
polymers, 13–16, 19–20, 28, 30, 46–49, 51, 56, 61, 140–44, 149, 322, 324–25, 354–55, 447–48, 478–79
  amphiphilic, 348, 474, 479
  biodegradable, 15, 51, 57
  natural, 13, 47, 66, 187, 214, 351
  nonbiodegradable, 321
  pH-dependent, 145, 151, 355
  pH-sensitive, 141, 151
  synthetic, 13, 135, 180, 187, 213–14, 347, 350
  time-dependent, 145, 151
poly(propyl ether imine) (PETIM), 349, 364
polysorbates, 19–20, 83, 244, 249
polyvinyl acetate (PVA), 89
positron emission tomography, 482
prebiotics, 67, 122, 124–26, 162
probiotic, 123, 125–26, 154
prednisolone phosphate (PLP), 383–84, 391–92
prodrugs, 146, 285, 319, 325
pro-inflammatory cytokines, 123, 377, 380, 385, 389, 392–97, 415
pro-inflammatory effects, 506–7, 513, 523
proteins, 26–27, 34, 64–66, 278–79, 297–300, 410, 416, 421–23, 427–28, 430–32, 475–78, 507–8, 516, 518–19, 522–23
proton sponge effect, 414, 425–26
PS. *See* pulmonary surfactant.
PTX. *See* paclitaxel.
pulmonary delivery, 198, 208, 212–15, 217, 220, 222–23

pulmonary drug delivery, 205, 208, 212–13, 222
pulmonary surfactant (PS), 207, 217
PVA. *See* polyvinyl acetate.
PVP. *See* poly(*N*-vinyl pyrrolidone).
Pyrazinamide (PZA), 198–99, 204, 215–16, 219–20
PZA. *See* pyrazinamide.

QD-AB1, free, 256, 454–55, 468–75, 477, 480–94
QDs. *See* quantum dots.
quantum dots (QDs), 248, 255–57, 350, 360, 447, 454–55, 457, 467–94
quercetin, 16–17, 59, 324, 327

RA. *See* rheumatoid arthritis.
RA. *See* rosmarinic acid.
radiofrequency, 172, 177–78
RAW 264.7, 511–12, 515–16, 521
redox nanoparticles (RNPs), 351
reactive nitrogen species (RNS), 514–15
reactive oxygen species (ROS), 30, 254, 333, 351, 353, 429, 514, 517, 522, 525
reactive species (RS), 146, 491, 513–16, 520–23, 525
receptors, 28, 31, 35, 211, 297–98, 300, 378, 386, 389, 391, 394–96, 420–21, 423, 480–81, 484
regeneration, 173, 188
release profiles, 24, 34, 65, 145, 150, 155, 158, 183, 185, 209, 219, 320, 328, 355, 392
RES. *See* reticuloendothelial system.
resistance, 75, 77, 90, 94, 173, 175, 270, 278, 281, 312, 314, 324, 411, 414, 417
  acquired therapeutic, 272
  antimicrobial, 76
  microbial, 78
  multidrug, 282
resveratrol (RSV), 245, 247, 249–50
reticuloendothelial system (RES), 243–44, 248–49, 257, 381, 384
RGD. *See* Arg-Gly-Asp.
rheumatoid arthritis (RA), 5, 346, 352, 375–87, 389, 391–98
RIF. *See* rifampin.
rifabutin, 204, 220–21, 229
rifampin (RIF), 198–200, 203–4, 215–17, 219–21
RISC. *See* RNA-induced silencing complex.
RNA, 280, 300, 412, 418, 427, 431, 452, 455, 488
RNA–DNA hybrid, 418
RNAi. *See* RNA interference.
RNA-induced silencing complex (RISC), 416, 422
RNA interference (RNAi), 290, 411–12, 416–18
RNPs. *See* redox nanoparticles.
RNS. *See* reactive nitrogen species.
ROS. *See* reactive oxygen species.
rosmarinic acid (RA), 117, 125, 377–78, 381, 386, 389, 396–98
route
  intravenous, 78, 314, 317
  parenteral, 153, 157, 208
  synthetic, 473–75
  transcellular, 26, 117, 137
  transfollicular, 174–75
RS. *See* reactive species.
RSV. *See* resveratrol.

SC. *See* stratum corneum.
scanning calorimetry analyses, 250
SCFA. *See* short-chain fatty acid.
SCID. *See* severe combined immunodeficiency.

secretion, 29, 81, 90, 136, 138–39, 150, 518–19
self-administration, 78, 84, 134
self-assembling, 327, 332, 355
self-nanoemulsifying drug delivery system (SNEDDS), 327–28
self-renewal, 279
semiconductor QDs, 479, 491–93
sensitivity, 56, 202, 280, 472, 477, 481, 489, 499
SERS. *See* surface-enhanced Raman scattering.
severe combined immunodeficiency (SCID), 325
shelf life, 210, 329–31, 358
short-chain fatty acid (SCFA), 123
shRNA. *See* short hairpin RNA.
short hairpin RNA (shRNA), 293, 297, 300, 323
single-walled carbon nanotube (SWCNT), 122
silica nanoparticles, 248, 253–54, 257, 348, 350, 450–51
silver nanoparticles, 118, 120, 125, 505–6
siRNA. *See* small interfering RNA.
skin barrier, 177–79, 187, 189
skin delivery, 174–75, 179, 182, 184, 187, 358
skin penetration, 172, 175, 178–81, 361
skin permeation, 175, 186–87, 189, 346, 348, 358, 361
SLIT. See sustained-release inhaled liposome targeting.
SLNs. *See* solid lipid nanoparticles.
small interfering RNA (siRNA), 152, 291, 293, 300, 378, 395–96, 410, 412, 415–17, 419, 421–23, 427, 447, 452, 456
SNALP. *See* stable nucleic acid lipid particle.
SNEDDS. *See* self-nanoemulsifying drug delivery system.
solid lipid nanoparticles (SLNs), 20–24, 82–84, 89–90, 92–96, 117, 119–21, 123–25, 179, 182–85, 220–21, 249–50, 328–29, 348–49, 356–57, 446–47
soluble drugs, 10–20, 22–24, 31, 33–37, 57, 139, 221
specificity, 202, 244, 290, 303, 314, 381, 397, 431, 440, 444, 476, 478, 480
SPION. *See* superparamagnetic iron oxide nanoparticle.
Sprague–Dawley rats, 124, 247, 322–25, 328, 331–32
spray chilling, 183
spray drying, 216, 219
stability, 15–16, 18–20, 22, 55, 57–58, 61, 65–66, 85–87, 123, 210, 220, 251–53, 256–57, 321, 325, 327, 357, 416–20, 473–75, 482
stable nucleic acid lipid particle (SNALP), 274, 421
stem cells, 279–80, 299, 509, 519
STOP codon, 429
stratum corneum (SC), 173–76, 178–81, 183–84, 357–58
superparamagnetic iron oxide nanoparticle (SPION), 450
surface-enhanced Raman scattering (SERS), 506
surface-to-mass ratio, 210
surface-to-volume ratio, 244, 472
surfactants, 19–20, 33–34, 36, 82–83, 90, 149, 181, 185, 207, 244, 246, 249, 251, 326–28, 413–14, 426, 429
sustained-release inhaled liposome targeting (SLIT), 282, 286

SWCNT. *See* single-walled carbon nanotube.
synovial cells, 379–81, 388, 390–92, 396
synovial inflammation, 379, 386, 394, 396
synovial macrophages, 387, 395, 397, 402
synovial tissues, 375–76, 382, 384, 386, 388–91, 398
synovial vascularization, 379–80, 389, 391
synoviocytes, 380, 385, 388, 395–96
synovium, 375, 377–80, 382–87, 389–90, 392–94
systemic absorption, 133, 140, 150–51, 158, 184
systemic toxicity, 147, 219, 394

TALEN. *See* transcription activator-like effector nuclease.
T-antigen, large, 414, 424, 427
target cells, 215, 300, 410, 413, 418, 420, 422, 481
target drug delivery, 138, 156
target-to-treat, 376, 380, 397–98
TAT. *See* trans-activating transcriptional.
TB. *See* tuberculosis.
TB treatment, 198–99, 204, 208, 224–25
TF. *See* transcription factor.
theranostics, 5, 247, 254–55, 273, 444–46, 450–51, 458–59
therapeutic agents, 29, 209, 213–14, 239, 242, 381, 386, 388, 392, 397, 415, 420, 443–44, 446–49, 451–59
therapeutic anti-inflammatory index, 387
therapeutic applications, 37, 77, 88–89, 301, 389, 394, 412, 417, 430
therapeutic effects, 48, 77, 140, 150–51, 181, 189, 209, 238, 244–45, 250, 302, 318, 384, 388, 391
therapeutic efficacy, 78, 80, 93, 98–100, 151, 153, 274–75, 290, 295, 300, 331–33, 345, 347, 378–79, 391–92
therapeutic efficiency, 93, 358, 377–78, 382, 388, 489
therapeutic index, 205, 282, 303
therapeutic proteins, 135, 159, 300
therapeutics, 189, 298, 313, 468, 506, 523
therapeutic targets, 140, 290, 303, 391
therapeutic tools, 214, 254, 467
therapies, 89–90, 199, 204–5, 223–24, 254–55, 257, 270–71, 299–300, 315–17, 346, 375, 378–79, 397, 455–56, 458
  combination, 4, 332, 375, 377–78
  combined, 311–12, 320, 333
  photodynamic, 448, 453, 457, 467–68, 491
tight junction (TJ), 26, 30, 45, 48, 137, 237, 240–41, 244
tissues
  healthy, 147, 155, 157, 238, 388, 420
  inflamed, 147, 149–50, 379, 381, 398
TJ. *See* tight junction.
TLR. *See* toll-like receptor.
TNBS. *See* trinitrobenzenesulfonic acid.
TNF. *See* tumor necrosis factor.
tolerability, 182, 184, 189, 209
tolerance, 86
  high cross-species, 331
toll-like receptor (TLR), 415, 435
TOM, 430

topical delivery, 172, 180, 189, 356–57, 359
TOPO, 473–74
toxic effects, 61, 81, 94, 116, 127, 238, 244, 319, 325, 329, 381, 420, 511, 521, 524
toxicity, 57, 60–61, 63, 81, 94–95, 147, 210–11, 256, 315–16, 331–33, 345–49, 444–45, 492–93, 506–14, 523
toxicological effects, 89, 508–9
toxins, 24, 86, 424, 489
trans-activating transcriptional (TAT), 425
transcellular, 26–27, 79, 137, 176, 241
transcription activator-like effector nuclease (TALEN), 414, 430
transcription factor (TF), 293, 379, 414, 421, 428, 513, 515, 517, 521, 523
transdermal, 174–75, 177–79, 189, 357–61
transdermal administration, 182, 356–57, 359
transdermal delivery, 172, 176, 178, 180, 357–58, 361
transfection, 387, 420, 424, 426–27
translocation, 28, 206, 213, 223, 388, 424, 427–28, 517
transport, carrier-mediated, 25, 27–29
transporters, 26, 28–29, 240–41, 297, 330, 422
transport pathways, 27, 176, 509
treatment regimens, 218, 223, 300, 317
trinitrobenzenesulfonic acid (TNBS), 141, 143, 150–51
Trojan horse, 512
tuberculosis (TB), 5, 86, 197–205, 211, 213, 215, 219–21, 223–24, 245, 250, 379
tumor cells, 59, 278–79, 298–300, 380, 420–21, 455, 481–82, 506
tumor growth, 61, 312, 314, 325, 331, 333, 380, 421
tumor necrosis factor (TNF), 378, 390, 515, 518–19, 525
tumors, solid, 56–57, 275–76, 284–85, 288–89, 291, 293
tumor sites, 280, 300, 325, 329, 331, 482
tumor tissues, 62, 278, 323, 382, 458
Tween, 19, 90, 94, 221, 250, 329

UGA codon, 429
ulcerative colitis, 137, 141, 146, 356
ultrasensitive FRET nanosensor, 485
ultrasonic field treatment, 178
ultrasound, 361
ultrassonication, 21
ultraviolet (UV), 173, 485–86, 507
uptake, 26–27, 29–30, 80–81, 85–86, 90–91, 97–98, 206–7, 211–12, 328, 384, 387–89, 391–92, 422–23, 426–27, 508–9
UV. *See* ultraviolet.

vaccines, 84, 86–87, 94, 134, 139, 157, 198, 200, 203–4, 273, 291, 293, 424
vascular endothelial cells (VECs), 353, 378, 391–92
vascular endothelial growth factor (VEGF), 241, 291, 305, 380, 389–90, 404, 519, 525
vascularization, 208, 389
vascular tree, 205
vasculature, high, 56, 275, 278, 325
vasculogenesis, 399
VECs. *See* vascular endothelial cells.

vectors
  lipid-based, 421
  nonviral, 413, 427–28
  viral, 203
VEGF. *See* vascular endothelial growth factor.
vehicles, 46, 174–75, 248, 252, 255, 326, 414
versatility, 59, 82–83, 181, 410, 469, 483
vesicles, 18–20, 28, 83, 93, 217, 240, 248, 276, 297, 330–31, 357–58, 422, 425
vesicular structures, 18, 217, 330, 422
vesicular systems, 13, 357
viability, 59, 201, 493
viral dependency, 412
viral infections, 90–91, 431
viruses, 77, 86–87, 90–91, 99–101, 112, 157, 199, 410–12, 424–25, 481, 488
viscosity, 48, 137–39, 144, 180
vitamins, 17, 31, 81, 115, 184, 386

water solubility, 11, 15, 48, 51, 252–53, 348, 474, 479
WHO. *See* World Health Organization.
Wistar rats, 90, 124–25, 149, 245, 250, 321–23, 331
witepsol solid lipid nanoparticles (WSLNs), 123
World Health Organization (WHO), 75–76, 85, 199–200, 203, 238, 271, 312
WSLNs. *See* witepsol solid lipid nanoparticles.

xenobiotics, 28
X-linked severe combined immunodeficiency (X-SCID), 409, 411, 413, 431
X-ray diffraction (XRD), 32, 249, 507
X-ray lithography, 473, 495
XRD. *See* X-ray diffraction.
X-SCID. *See* X-linked severe combined immunodeficiency.

ZFNs. *See* zinc-finger nucleases.
zinc-finger nucleases (ZFNs), 414, 430
ZnO NPs, 118, 126
ZnS QDs, 489

The creation of new and more efficient therapies for improving human health greatly depends on drug delivery systems. Nanotechnology has emerged as a powerful strategy for the development of nanoparticles, such as nanoemulsions, liposomes, nanocrystals, and nanocomplexes, applied in the diagnosis, treatment, or theranostics of several pathologies and diseases. This book reviews the most recent research and development in nanotechnology and, following a multidisciplinary approach, presents new strategies for drug delivery, including aspects from chemistry, physics, biology, and imaging methodologies and exploiting several administration routes, internalization pathways, site-specific delivery strategies, and the potential cytotoxicity of nanoparticles.

Beginning with a description of the importance and application of nanotechnology for enhancing existing therapy, the book moves on to detailing oral, topical, pulmonary, brain, cancer, and anti-inflammatory drug delivery approaches; gene delivery approaches; theranostic approaches; and nanoparticle cytotoxicity. Practical and user friendly, it is suitable for advanced undergraduate, graduate, and postgraduate students of nanoscience and nanotechnology; researchers in nanoscience, nanotechnology, chemistry, biology, biochemistry, pharmaceutical sciences, medicine, and bioengineering, especially those with an interest in drug delivery or theranostics; and academia and university readership.

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