

INDEX

- angiogenesis and metastasis, 122, 125–26
- antiangiogenic effects, 127
- antiproliferative effects, 121, 123–24
- antigen-presenting cells, 70, 76, 80
- antimicrobial resistance, 89
- apoptosis, 3, 78, 120–28

- bioactive glasses, 119
- bioavailability, 7, 57, 73, 75, 105, 139, 151, 160, 165
- biodegradability, 24, 29, 31–32, 354, 39, 72, 74
- biological barriers, 10, 12, 53, 164–65
- biomacromolecules, 25
- biomedicals, 45
- biomolecules, 5, 14, 35–36, 69
- biosensors, 15, 22, 121, 136
- bottom-up, 4, 25–26, 28–29, 92–95

- cancer immunoediting, 64
- carbon nanotubes, 8, 35–36, 52–53, 67–68, 93, 121, 162, 167
- carbon-based materials, 1, 7, 25, 36, 67, 72, 93–94, 98, 137, 162
- chemodynamic therapies, 7
- chemotherapy, 7, 54, 81–83, 114–15, 117
- commercialisation, 16, 39, 148, 164
- COVID-19, 21
- cyclodextrin nanosponges, 7
- cytosolic fluid, 53
- cytotoxicity, 48, 53–54, 69, 125, 171

- dendrimers, 1, 7–8, 73, 117
- dendritic cells, 66, 70

- ethical concern, 146, 164, 168, 170
- extracellular vesicles, 7
- extrinsic (death receptor) pathways, 123, 125

- food and drug administration,
3, 12, 104, 138
FDA *see* food and drug
administration
frameworks, 135, 138, 140,
143–44, 152–54
green technology, 23
homeostasis, 123, 125
immune checkpoints, 65
in silico, 47–48, 57
in vitro, 15, 47–48, 52, 54, 57, 73,
148, 150, 165, 172
in vivo, 47, 52, 54, 57, 73, 77, 80,
150, 171–73
inflammatory response, 14,
171–72
influenza, 91
intrinsic pathways
(mitochondrial), 120
liposomes, 7, 73, 82, 117, 120,
160, 163
magnetic resonance imaging,
71
mcf-7 cell lines, 69
monoclonal antibodies, 7–8, 66,
78
morbidity, 89
mRNA, 80–81
multi-drug resistance, 89–91,
100, 102, 106
nanoemulsions, 7
nanomaterial-based therapy, 7
nanotechnology, 1–2, 4, 13, 16,
21, 23, 33, 45–46, 52, 54, 56,
68, 83, 91, 115–16, 120, 137,
139, 141–42, 145–47, 151–
53, 159–61, 163, 169–75
nanotoxicity, 2, 10, 15, 55–57
natural killer, 66, 70
oncology, 7
oxidative stress, 10, 14, 48–49,
50, 125, 141, 167
pathogens, 66, 90
personal protective equipment,
141
pharmacodynamic, 14
pharmacokinetic, 14, 34, 56,
149, 160, 174
photodynamic therapy, 7
photomedicine, 45
photothermal therapy, 7, 70,
81–82
radiation therapy, 7
reactive oxygen species, 14, 48,
50–51, 119, 139, 167
regulatory standards, 2, 14, 144,
147, 150, 154–53, 174
renewable resources, 4, 24–25

risk mitigation, 46, 55, 57
route of exposure, 56, 139

short lipid NPs, 7
sustainable development goals,
3, 21

t-cells, 64, 70
tissue engineering, 30, 15, 175

top-down, 4, 25–26, 28–29, 92–
93, 95
toxicokinetic, 54

United Nations, 3–4, 139
vaccines, 16, 22, 66, 70–71, 73,
140, 159
vascular endothelial growth
factor, 126–27