

Index

- Abscesses, 321
- Ac-EEMQRR. *See* acetyl-glutamate-glutamate-methionine-glutamine-arginine-arginine
- Acetone, 301
- N*-acetyl-4-*S*-cystalminylphenol (NA-CAP), 224
- Acetyl aminosugars, 243
- N*-acetylglucosamine (NAG), 243, 246–247
- Acetyl-glutamate-glutamate-methionine-glutamine-arginine-arginine (Ac-EEMQRR), 176–178
- Acid mantle, 52, 91
- Acne
 - adapalene, 277–279
 - adjunctive acne products, 260–262
 - alpha hydroxy acids, 262, 279–280
 - anti-androgens, 286
 - antibiotics, 281–286
 - anxiety, 251
 - astringents, 72–73
 - azelaic acid, 281
 - benzoyl peroxide, 257–259, 281
 - botanicals, 260, 320
 - capryloyl salicylic acid, 261
 - clindamycin, 281, 284–285
 - clinical considerations, 252
 - clinical imaging for OTC products, 266–268
 - combination therapy, 262–266
 - comedone extraction, 290
 - cyproterone acetate, 286
 - development influences, 252
 - doxycycline, 283–284
 - economic impact, 251, 273
 - emotional impact, 251, 273
 - [Acne]
 - erythromycin, 281, 284
 - estrogens, 287
 - face, 6
 - facial cleansers, 279
 - flutamide, 286
 - follicular epidermal hyperproliferation, 273–274
 - formulation issues, 34
 - glycolic acid, 279–280
 - hormonal therapy, 286–287
 - hydroxy acids, 279–280
 - inflammatory, 276
 - intralesional triamcinolone, 291
 - isotretinoin, 287–289, 290
 - lactic acids, 279–280
 - lasers, 291–292
 - macrolide antibiotics, 284
 - minocycline, 284
 - noninflammatory, 276
 - nutraceuticals, 262
 - oral antibiotics, 281–286
 - oral contraceptives, 285, 286–287
 - oral supplements, 262
 - OTC formulation advances, 254–268
 - OTC medications, 251–268
 - OTC monograph, 252–253
 - OTC products formulation, 253
 - pathogenesis key stages, 273–276
 - photodynamic therapy, 291–292
 - phototherapy, 291–292
 - physical modalities, 290–291
 - prevalence, 251, 273
 - progestins, 286–287
 - psychological impact, 251, 273

- [Acne]
 quality of life, 251
 retinaldehydes, 260–261
 retinoids, 276–279
 salicylic acid, 245, 254–257, 279–280, 282
 soaps, 55, 279
 social impact, 251, 273
 sodium sulfacetamide, 281
 spirinolactone, 286
 sulfur, 259–260
 sulfur/resorcinol combinations, 259–260
 sulfur–sodium sulfacetamide, 281
 syndets, 279
 tazarotene, 277–279
 tea tree oil, 260
 tetracyclines, 281–283
 toners, 72–73, 74
 topical antibiotics, 281
 treatment methodologies, 273–292
 tretinoin, 277–279
 trimethoprim/sulfamethoxazole, 285
 ultraviolet radiation, 291
 visible light, 291
- Acne rosacea, 6
- Actinic cheilitis, 12, 320
- Active ingredients
 antiperspirants, 128–129
 sunscreens, 156, 157
 UV filters, 136–137, 139, 145
- Acute inflammation, 351–353
- Acyl isethionates, 41
- Adapalene, 277–279
- Adjunctive acne products, 260–262
- Adverse reactions. *See* side effects
- Aesculus hippocastanum* (horse chestnut), 318, 333–334
- Aesthetics
 antiperspirants, 130–131
 sunscreens, 141, 143–144
- Aging
 body cleanser choice, 56–57
 chronological skin aging, 136
 formulation issues, 28–29
 photo-induced skin aging, 136
See also anti-aging
- Agrimony (*Agrimonia eupatoria*), 342
- AHAs. *See* alpha hydroxy acids
- Alcohol, 301
- Alcohol ethoxylates, 42
- Alcohol-free toners, 73
- Alkyl ether sulfates, 41
- Alkylphenyl ethoxylates, 42
- Alkyl sulfates, 41
- Allantoin, 328
- Allergan, 133
- Allergic contact dermatitis, 8, 9, 32–33, 314
- Allergies, eyelids, 8, 9
- Allium cepa* (onion), 334–335
- Allium sativa* (garlic), 331
- All-*rac*-alpha-tocopheryl acetate, 381
- Aloe, 208, 318, 328
Aloe barbadensis, 328
Aloe capensis, 328
Aloe vera, 208, 328
- Aloesin, 208, 214, 224
- Alopecia, 313, 320
- Alopecia areata, 320
- Alpha hydroxy acids (AHAs)
 acne, 262, 279–280
 anti-aging plus exfoliation, 240–241
 exfoliation, 237, 240–244
 moisturizer formulations, 119
 OTC acne medications, 262
 skin lightening agents, 212–213, 228
 toners and astringents, 70
See also glycolic acid; lactic acid
- Alpha-linolenic acid, 225
- Alpha-lipoic acid, 196, 210, 225, 391–393
- Alpha-tocopherol, 210–211
- d-Alpha-tocopherol, 382
- All-*rac*-alpha-tocopheryl acetate, 381
- Altitude effect on skin cancer incidence, 154
- Aluminium chloride, 132, 228
- Aluminium oxide, 239
- American Academy of Dermatology, 146
- American Cancer Society, 146–147
- American Society for Photobiology, 147
- Amevive, 360
- Amino filaggrin acids, 192–193
- Aminolevulinic acid, 291
- Amino peptides, 197–198
- Amphoteric surfactants, 42
- Anal fissures, 321
- Ananas comosus* (pineapple), 319, 346
- Anaphylaxis, 313
- Anatomy and physiology
 body, 22
 eyelids, 8–9
 face, 4–6
 feet, 15
 female genitalia, 25
 hands, 13
 lips, 11
 male genitalia, 25–26
 nails and cuticles, 17
 neck, 21
 scalp, 19
 underarms, 23

- Androgenic hormones, 274, 275
Angioedema, 317
Anionic surfactants, 41
Anise (*Pimpinella anisum*), 328–329
Antelaea azadirachta (neem), 334
Anti-aging
 alpha-hydroxy acids, 240–241
 dimethylaminoethanol, 178–179
 flavonoids, 181
 formulations, 167–183
 hydroxy acids, 181, 240–241
 keto acids, 181
 kinetin, 179–180
 medical mimics, 405
 moisturizers, 181
 N-acetylglucosamine, 246–247
 peptides, 176–178, 182
 plant extract components, 181
 salicylic acid, 246
 triterpenoids, 180
 ubiquinone, 181
 vitamin A, 167–170, 182
 vitamin B3, 170–174, 182
 vitamin C, 174–176, 378
 See also aging
Antiandrogens, 286
Antibiotics
 benzoyl peroxide combination, 257–258, 281
 oral, 281–286
 patient concerns, 285
 resistance, 285–286
 topical, 281
Anti-inflammatories
 astringents, 74
 benzoyl peroxide, 257
 botanicals, 362–363
 cosmeceutical actives, 362–363
 ELISA-based screening, 363–365
 formulations development, 368–373
 gene array analysis, 367–368
 immunomodulators, 358–361
 NSAIDS, 357–358
 OTC medications, 353–361
 percutaneous absorption analysis, 370–372
 prescription treatments, 353–361
 RT-PCR, 365–366
 screening assays, 363–368
 skin inflammation biology, 351–353
 steroids, 353–357
 toners, 74
 topical, 351–373
 UV radiation clinical study, 372–373
Antioxidants
 alpha-lipoic acid, 391–393
 cosmeceuticals, 196–197
 future trends, 404
 genistein, 387–391
 new combinations, 386–387
 selenium, 384–387
 soy extract, 387–391
 topical nutritional antioxidants, 377–395
 ubiquinone (coenzyme Q10), 393–395
 vitamin C, 174, 377–379, 386
 vitamin E, 379–383, 386–387
Antiperspirants, 24, 123–134
 approved active ingredients, 128–129
 definition, 124
 efficacy, 126–128
 formulating for the customer, 130–131
 formulation approved active ingredients, 128–129
 formulation variations, 129–130
 functions, 127, 128
 history, 123–124
 hyperhidrosis, 131–132
 medical approaches, 131–134
 new active formulations, 131
 recommended and approved uses, 127
 regulatory status, 124–126
AP-1 transcription factor, 354–356
Apthous stomatitis, 320
Apocrine sweat glands, 5, 23
Apple (*Malus domestica*), 338
Application behavior using antiperspirants, 130
Approved active ingredients
 antiperspirants, 128–129
 OTC acne products, 252–253
Approved uses, antiperspirants, 127
Arbutin, 208, 214
Armpits. *See* underarms
Arnica (*Arnica montana*), 318, 338
Ascorbic acid. *See* vitamin C
Ashiness, 57, 58–59
Aspirin, 357
Astringents. *See* toners and astringents
Atopic dermatitis, 9, 31–32
Avena sativa (oat), 345
Azelaic acid, 207, 224, 281

Bacterial infections, 322
Barrier augmentation, 101–107
Barrier defects on face, 6
Barrier deterioration, dry skin cycle, 97–98
Barrier functions
 alpha-hydroxy acids, 241
 stratum corneum lipids, 81–84

- Bars, 55, 56
 Basic cleanser formulations, 120
 Basic skin care processes, 115–116
 Bathing devices, 238
 Behavior modification for
 photoprotection, 160
 Benzophenones, 158, 159
 Benzoyl peroxide, 253, 257–259,
 264–265, 281
 Beta hydroxy acids, 280. *See also* salicylic acid
 Betaines, 42
Betulae folium (white birch), 342
Bidens tripartita (burr marigold), 319
 Bilayer-forming lipid, 100–101
 Binding of surfactants to stratum corneum
 proteins, 47–49
 Bioequivalency, 190
 Biofilms, 6
 Biological screening assays, 363–368
 Biologic response modifiers, 360–361
 Bionic acids, 237, 241–244
 Biophysics of stratum corneum, 81–84
 Biotin, 18
 Bites, 320
 Bitter orange (*Citrus aurantium*), 329
 Bittersweet nightshade (*Solanum
 dulcamara*), 342
 Bitter taste, 320
 Blackheads. *See* comedos
 Black nightshade (*Solanum nigrum*), 329
 Black seed (*Nigella sativa*), 329
 Black tea, 336–337
 Bleeding, 317, 320
 Blistering, 313
 Bloodroot (*Sanguinaria canadensis*), 304
 Blue light-fluorescence light imaging, 263,
 266–267
 Body, 22–23, 56–59
 Botanicals
 acne, 320
 adverse reactions, 311–319
 anti-inflammatories, 362–363
 astringents, 69
 background, 309–310
 bacterial infections, 322
 combination cautions, 312, 318–319
 cosmeceuticals, 190, 200
 fungal infections, 322
 future trends, 404–405
 German Commission E approved herbs, 312,
 342–347
 growing conditions, 310
 harvesting, 299–300
 hyperpigmentation, 321
 [Botanicals]
 inflammation, 322–323
 mucocutaneous complications, 312–317
 OTC acne medications, 260
 preparation types, 310, 311
 processing, 310–311
 regulatory issues, 311
 sales growth, 309
 scientifically rational, 312, 337–342
 severe complications, 312, 313–317
 skin lightening agents, 226
 sourcing material, 298–299
 species identification, 299
 species selection, 298
 therapeutic uses, 312, 320–327
 toners, 69
 topical, 297–305
 viral infections, 322
 Botox, 133
 Botulinum toxin A injections, 133
 Brand names of cleansers, 280
 Bruises, 320
 Buff puffs, 238
 Burns, 320
 Burr marigold (*Bidens tripartita*), 319
 Butcher's broom (*Ruscus aculeatus*), 343
 4-N-butylresorcinol, 224

 C₁₂ ionic surfactants, 44
 Cactus pear (*Opuntia ficus-indica*), 338
 Cajuput (*Melaleuca leucadendra*), 343
 Calcineurin, 359–360
Calendula officinalis (marigold), 345
 Calluses, 16
Caltha palustris (marsh marigold), 313, 314,
 316, 327
Camellia sinensis (teas), 336–337
Camptotheca acuminata Decne, 330
 Cancer, 153–162
 Candidiasis, 320
 Capryloyl salicylic acid, 261
Capsella bursa-pastoris (shepherd's purse), 346
Capsicum annuum (cayenne), 318, 330
 Carcinogenesis, 313
 Carcinoma, 320
 Care needs
 body, 23
 eyelids, 10
 face, 7–8
 feet, 16
 female genitalia, 25
 hands, 14–15
 lips, 12–13

- [Care needs]
 - male genitalia, 26
 - nails and cuticles, 19
 - neck, 22
 - scalp, 20–21
 - underarms, 24
- Carica papaya* (papaya), 318, 340
- Casual lipid, 45–46
- Cationic surfactants, 41–42
- Cayenne (*Capsicum annuum*), 318, 330
- Cell signaling, 197–199
- Cellulite, 406–407
- Cellulitis, 322
- Centers for Disease Control and Prevention, 147
- Ceramides
 - biosynthesis increasing agents, 103–107
 - dry skin, 94–96
 - dry skin cycle, 100
 - environmental effects on stratum corneum, 93–94
 - stratum corneum, 81–84, 93–94
 - structure, 82
- Chaste tree (*Vitex agnus-castus*), 318, 343
- Cheilitis, 12, 320
- Chemical exfoliation, 237, 239–247
- Chemical peels, 227–228
- Chemical sunscreens, 157–159
- Children, 28
- Chinese medicine, 213
- Chinese olive (*Canarium species*), 314
- Cholesterol, 83, 102–103
- Chromatography, 299
- Chronic inflammation, 353
- Chronological aging, 136, 188–189
- Cinnamates, 158, 159, 312
- Cinnamic acid, 213
- Citrus aurantium* (bitter orange), 329
- Claims, toners and astringents, 73–74, 75
- Cleansers and cleansing
 - acne, 279
 - basic formulations, 120
 - basic skin care processes, 115–116
 - benzoyl peroxide, 257, 258–259
 - brand names, 280
 - cloths, 55
 - efficiency tests, 36–40
 - gentle skin cleansing significance, 120
 - personal, 35–59
 - personal cleansing products, 35–40
 - pH, 279, 280
- Clindamycin, 281, 284
- Clinical imaging, 266–268
- Clothing for photocarcinogenesis reduction, 159–160
- CO₂ resurfacing lasers, 228–229
- CO₂ super critical fluid extraction, 301
- Codemos, 276
- Coenzyme Q10 (ubiquinone), 181, 196, 393–395
- Collagen synthesis, 378
- Color
 - skin/formulation issues, 29–30
 - toners and astringents, 70
- Column chromatography, 302
- Combination therapies
 - anti-aging formulations, 182
 - botanicals, 312, 318–319
 - OTC acne medications, 262–266
 - skin lightening, 231, 232
- Comedones, 34, 290
- Comfrey (*Symphytum officinale*), 328
- Compatability
 - skin, 42–45, 49
 - sunscreens, 140–141
 - toners and astringents ingredients, 73
 - water hardness/cleansers, 49
- Compliance barriers for antiperspirants, 129–130
- Condyloma acuminata, botanicals, 326
- Conjunctivitis, 313
- Contact allergy, toners and astringents, 75
- Contact blistering, 313
- Contact dermatitis
 - complication-causing botanicals, 315
 - formulation issues, 32–33
- Contusions, 320
- Copper chelation, 209
- Copper peptides, 198
- Corneocyte envelopes, 87–90, 96
- Corneocytes, 7, 98–99
- Corneodesmolysis, 84–87, 107
- Corneodesmosomes, 84–87, 94, 107
- Corns, 16
- Corticosteroids, 354–357
- Cosmeceuticals
 - anti-inflammatory, 362–363
 - botanicals, 190, 200, 309–347
 - categories, 192–199
 - dermatology role, 187–202
 - formulation selection, 199–200
 - future, 200–202, 403–405
 - history and background, 187–188
 - regulatory guidelines, 191–192
 - sales growth, 189
 - skin lightening agents, 222, 225–226
 - skin structure and function response, 189–190

- Cosmetic elegance, 118–119
 Cosmetic extracts, 300–304
 Cosmetic surgery, 74
 Cosolubilizers, 69
 Costs, 140, 200
 COX inhibitors, 357–358
 Creams, 119, 130
 Critical micelle concentration, 36
 Cross-disciplinary knowledge base, 1
 Cross-polarized light imaging, 263, 266
Cucurbita pepo (pumpkin), 340
 Cu-GHK. *See* tripeptide copper glycine-histidine-lysine
Curcuma domestica, 330
Curcuma longa, 330
 Curcumin, 318, 330, 362
 Customized products future trends, 406
 Cuticles, 16–19
 Cyclical models, 96–99
 Cyclosporine, 358–360, 361
 Cyproterone acetate, 286
- D-alpha-tocopherol, 382
 Dandruff, 19–20
 Date palm (*Phoenix dactylifera*), 330–331
 Deanol. *See* dimethylaminoethanol
 Decubitus, 325
 Dehydroepiandrosterone sulfate (DHEA-S), 198, 274
 Delipidization, 45–47
 Delivery systems, 253, 254, 407
 Deodorants, 124, 127–128
 Depigmentation, 205–214, 219–232
 Dermabrasion, 228
 Dermatitis, 314–315, 321
 Dermatology
 - alpha-hydroxy acids, 242
 - bionic acids, 242
 - cosmeceuticals role, 187–202
 - polyhydroxy acids, 242
 - toners and astringents, 74–75
- Dermis, 5
 Desmolytics, 237, 244–246
 Desquamation, 85–87, 98
 Desquamatory enzymes, 85–87
 DHEA-S. *See* dehydroepiandrosterone sulfate
 Dibenzoylmenthanes, 158, 159
 Digital imaging, 266, 267–268
Digitalis purpurea (foxglove), 297
 Dihydroacetone, 142–143
 Dihydrolipoic acid, 391–393
 Dihydrotestosterone, 274
 Dimethylaminoethanol (DMAE), 178–179, 199
- Diseases
 - body, 22–23
 - eyelids, 9–10
 - face, 6–7
 - feet, 15–16
 - female genitalia, 25
 - hands, 13–14
 - lips, 11–12
 - male genitalia, 26
 - nails and cuticles, 17–18
 - neck, 21
 - scalp, 19–20
 - underarms, 24
- DMAE. *See* dimethylaminoethanol
 DNA fingerprinting, 299
 DNA synthesis, 93
 Doxycycline, 283–284
 Dry skin, 71–72, 79–108
 Dyspigmentation, 315
- Eccrine glands, 5
 Echinacea
 - Echinacea angustifolia*, 318, 331
 - Echinacea pallida*, 331
 - Echinacea purpurea*, 331
- Economic impact of acne, 251, 273
 Eczema, 6, 9–10, 14, 16, 31
 Edematous, 315
 Efficacy
 - alpha-lipoic acid, 393
 - antiperspirants, 126–128
 - benzoyl peroxide, 258, 259
 - cosmeceuticals formulation selection, 200
 - dimethylaminoethanol, 179
 - genistein, 387–390
 - kinetin, 179–180
 - peptides, 177–178
 - personal cleansing products, 36–40
 - topical nutritional antioxidants, 385
 - triterpenoids, 180
 - ubiquinone (coenzyme Q10), 181, 394–395
 - vitamin A, 168–170
 - vitamin B3, 172–173
 - vitamin C, 174–175, 379
 - vitamin E, 383
- EGF. *See* epidermal growth factors
 Elderly persons, *See also* aging; anti-aging
 Elegance of cosmetics, 118–119
Eleutherococcus senticosus (ginseng), 338–339
 ELISA. *See* enzyme linked immunosorbent assay
- Ellagic acid, 209, 214
 Emollients, 69, 118–119
 Emotional issues, 251, 273

- Endoscopic thoracic sympathectomy (ETS), surgery, 132–133
- English plantain (*Plantago lanceolata*), 343
- Environmental effects
 skin response, 188–189
 stratum corneum, 92–94
 surfactant–skin interactions, 49
- Environmental Protection Agency (EPA), 147–148
- Enzyme linked immunosorbent assay (ELISA)-based screening, 363–365
- Enzymes, 194–195
- EPA. *See* Environmental Protection Agency
- Epidermal barrier issues, 115–117
- Epidermal differentiation, 92–94, 101–102
- Epidermal growth factors (EGF), 195
- Epidermal lipogenesis, 102–107
- Epidermal turnover acceleration, 212–213
- Epidermis
 face, 5
 structure, 80–81
- Equisetum arvense* (horsetail), 344
- Erbium:YAG lasers, 229
- Erbium resurfacing lasers, 228
- Erysipelas, 322
- Erythema, 137, 315, 372–373
- Erythematous, 315
- Erythroderma, 315
- Erythromycin, 281, 284
- Estrogens, 275, 287
- Ethanol, 68
- ETS. *See* endoscopic thoracic sympathectomy
- Eucommia ulmoides* Oliver (EUOL), 338
- Eupatorium cannabinum* (hemp agrimony), 313, 314
- European Cosmetic Directive, 125
- European Society for Photobiology, 147
- European Union (EU), regulations, 125, 191–192
- Evening primrose, 318
- Excision of sweat glands, 133–134
- Exfoliation
 chemical, 237, 239–247
 facial cleansing products, 55
 microdermabrasion, 247
 N-acetylglucosamine, 246–247
 physical, 237, 238–239
 salicylic acid, 237, 244–246
 topical, 237–247
- Exogenous moisturization, 117–118
- Extracts
 cosmetic, 300–304
 extraction processes, 301
- [Extracts]
 production goals, 300–301
 quality issues, 303–304
 safety and toxicology, 304
 standardization, 302–303
 topical botanicals, 300–304
- Exuviating agents, 237, 240–244
- Eyelids, 8–10
- Face
 cleansers for acne, 279
 formulation issues, 4–8
 personal cleanser choice, 54–56
 relaxers, 405
- Farnesol activated receptor (FXR), 101–102
- Fatty acids, 43–44, 81–84
- Feel of sunscreens, 141
- Feet, 15–16
- Female genitalia, 24–25
- Female skin, 27–28
- Fenugreek (*Trigonella foenum-graecum*), 318, 343
- Ferulic acid, 386
- Fibroblasts, 351–353
- Filaggrin, 90, 91, 192–193
- Film formers, 70
- Fissures, 321
- Flavonoids, 181
- Flax (*Linum usitatissimum*), 318, 343–344
- Fluorescence images, 264, 265, 267
- Flushing response, 174
- Flutamide, 286
- Follicular epidermal hyperproliferation, 273–274
- Follicular ostia, 4–5
- Follicular predilection, 30
- Folliculitis, 20
- Formulation issues
 acne, 34
 age/anti-aging, 28–29, 167–183
 alpha-lipoic acid, 393
 antiperspirants, 123–134
 astringents, 67–76
 basic cleansers, 120
 best for cosmeceuticals, 199–200
 body, 22–23
 contact dermatitis, 32–33
 cuticles, 16–19
 dimethylaminoethanol, 179
 eyelids, 8–10
 face, 4–8
 feet, 15–16
 female genitalia, 24–25
 gender, 27–28

- [Formulation issues]
- genistein, 390–391
 - hair shaft architecture, 30–31
 - hands, 13–15
 - hydroxy acids, 244
 - kinetin, 180
 - lips, 10–13
 - male genitalia, 25–26
 - moisturizer components, 118–119
 - nails, 16–19
 - neck, 21–22
 - optimal skin care and product selection, 115–121
 - OTC acne medications, 253
 - peptides anti-aging formulations, 178
 - personal cleansing products, 35–59
 - salicylic acid, 246
 - scalp, 19–21
 - sensitive skin, 31–32
 - site-specific needs, 3–26
 - skin color, 29–30
 - skin lightening agents, 205–214
 - special populations, 27–34
 - sunscreens, 143–144
 - toners, 67–76
 - topical anti-inflammatories development, 368–373
 - triterpenoids, 180
 - ubiquinone (coenzyme Q10), 181, 394
 - underarms, 23–24
 - vitamin A, 170
 - vitamin B3, 174
 - vitamin C, 175–176, 379
 - vitamin E, 382
- Foxglove (*Digitalis purpurea*), 297
- Fragile corneocyte envelopes, 88–90, 96
- Fragrance allergy, 21
- Fragrance-free products, 54
- Fragrance oils, 70
- Fragrance/personal cleansing products, 54
- Franz diffusion cell, 370–371
- French maritime pinebark (*Pinus pinaster*), 332–333
- Fruit acids, 192–193
- Fungal infections
- botanicals, 322
 - feet, 15
 - female genitalia, 25
 - male genitalia, 26
 - nails and cuticles, 17–18
 - scalp, 19–20
- N₆-furfuryladenine. *See* kinetin
- Furunculosis, 321
- Future trends, 403–407
- FXR. *See* farnesol activated receptor
- Galenic extracts, 310
- Garlic (*Allium sativa*), 331
- Gels, 130, 255–256
- Gender/formulation issues, 27–28
- Gene array analysis, 367–368
- Genetic technology, 406
- Genistein, 387–391
- Genitalia, 24–26, 56
- Genital warts, 25
- Gentle skin cleansing significance, 120
- Geriatrics, 29
- German chamomile (*Matricaria recutita*), 318, 332
- German Commission E approved herbs, 312, 342–347
- Gingivitis, 324–325
- Ginkgo (*Ginkgo biloba*), 318, 332
- Ginkgo biloba*, 318, 332
- Ginseng, 318
- Eleutherococcus senticosus*, 338–339
 - Panax ginseng*, 338–339
 - Panax quinquefolius*, 338–339
- Glossodynia, 315
- Glucocorticoid receptor complex, 354–356
- Glucocorticoid-related steroids, 354, 356–357
- Glutathionine peroxidase, 384
- Glycerine, 53–54
- Glycerol, 91, 99, 107
- Glycerol para-aminobenzoic acid, 157–158
- Glycine soja* (soy), 319, 335
- Glycolic acid
- acne, 279
 - anti-aging plus exfoliation, 240
 - cosmeceuticals, 190
 - skin lightening, 227
 - structure, 240
 - See also* alpha hydroxy acids
- Glycoprotein complexes, 84–87
- Glycosaminoglycans, 168
- Glycyrrhiza glabra* (licorice), 339
- Glycyrrhiza uralensis* (licorice), 339
- Grape seed (*Vitis vinifera*), 332–333
- Green tea, 318, 336–337
- Growing conditions for botanicals, 310
- Growth factors
- cosmeceuticals, 195–196
 - future trends, 405
- Guidelines for safe sun practices, 146
- Hair removal, 24
- Hair shaft architecture, 30–31

- Halitosis, 315, 321
Hamamelis virginiana (witch hazel), 337
Hands, 13–15
Hand washes, 39–40, 41
Harvesting plants, 299–300
Heartsease (*Viola tricolor*), 344
Heavy metals, 304
Hemorrhage, 317
Hemp agrimony (*Eupatorium cannabinum*), 313, 314
Herbs
 herbal medicine, 309–310
 scientifically rational, 312, 337–342
Herpes, 11, 25, 321
Hibiscus (*Hibiscus sabdariffa*), 339
Histamine antagonists, 106
History
 antiperspirants, 123–124
 cosmeceuticals, 187–188
Hormonal therapy, 286–287
Horse chestnut (*Aesculus hippocastanum*), 318, 333–334
Horsetail (*Equisetum arvense*), 344
Humectants, 68–69, 99, 118–119
Humidity, 92–94
Hydroquinone, 205–206, 214, 221
5-Hydroxy-2-hydroxymethyl-4H-pyran-4-one (kojic acid), 206–207, 214, 224, 227
Hydroxy acids
 acne, 279–280
 anti-aging formulations, 181
 dry skin cycle, 101
 formulation factors, 244
 See also alpha hydroxy acids;
 polyhydroxy acids
Hydroxydecyl ubiquinone (idebenone), 197, 226
Hygiene needs
 body, 23
 eyelids, 10
 face, 7
 feet, 16
 female genitalia, 25
 hands, 14
 lips, 12
 male genitalia, 26
 nails and cuticles, 18–19
 neck, 21–22
 scalp, 20
 underarms, 24
Hyperforin, 303
Hyperhidrosis, 14, 131–134, 321
Hypericum perforatum (St John's Wort), 302, 303, 319, 335–336
Hyperkeratosis, 245, 321
Hyperpigmentation
 botanicals, 321
 causes, 219–221
 formulation issues, 29
 medical and surgical approaches to
 skin lightening, 219–232
 retinoids, 169
 therapeutic approaches, 223
Hyperproliferation, 98, 273–274
Hyper-spectral imaging, 266–267, 268
Hypesthesia, 316
Hypoallergenic products, 33
Hypopigmentation, 29
Hyposalivation, 321
Ichthyosis, 321
Idebenone (hydroxydecyl ubiquinone), 197, 226
Identification of plant species, 299
IL-1. See interleukin-1
Imaging, 263–264, 265, 266, 268
Immunomodulators, 358–361
Impetigo, 322
Induction phase of dry skin cycle, 97
Infections, botanicals, 321–322
Inflammation
 acne, 275, 276
 biology, 351–353
 botanicals, 322–323
 See also anti-inflammatories
Inflammatory genes, 354–356, 359
Inflammatory mediators, 351–353
Ingrown hairs, 30–31
Intense pulsed light (IPL), 230, 231
Interleukin-1 (IL-1), 275
Intertrigo, 24
Intrinsic aging, 188–189
Invasive melanoma, 153
Iontophoresis, 132
IPL. See intense pulsed light
Irritant contact dermatitis, 8, 9
Irritation
 personal cleanser pH, 50–51
 retinoids, 168–170
 sunscreens, 140
Isatis tinctoria (woad), 297
4-Isopropylcatechol, 224
Isotretinoin (13-cis retinoic acid), 287–289, 290
Jambolan (*Syzygium cumini*), 344
Japanese regulatory status of
 antiperspirants, 125–126
Jessner's solution, 227
Jock itch, 26

- Jojoba (*Simmondsia chinensis*), 339
Juglans regia (walnut), 347
- Keloid, 323
 Keratin, 90–91
 Keratinocytes, 273–274, 351–353
 Keratolytic exfoliants, 237, 244–246
 Keto acids, 181
 Kinetin (N6-furfuryladenine), 179–180, 195–196
 Kojic acid (5-hydroxy-2-hydroxymethyl-4H-pyran-4-one), 206–207, 214, 224, 227
- Labeling OTC acne medications, 253
 Lacrimation, 321
 Lactic acid, 103–104, 240, 279–280. *See also* alpha hydroxy acids
 Lactobionic acid, 241, 242
Lamium album (white nettle), 347
 L-ascorbic acid. *See* vitamin C
 Lasers, 228–231, 291
 Latitude/skin cancer incidence, 154
 Lauric acid, 298–299
 Lavender
 Lavandula angustifolia, 344
 Lavandula officinalis, 344
 Lemon balm (*Melissa officinalis*), 334
 Leprosy, 323
 Licorice
 Glycyrrhiza glabra, 339
 Glycyrrhiza uralensis, 339
 herb combination cautions, 318
 skin lightening agents, 208–209, 226
 Lightening. *See* skin lightening
 Linoleic acid, 102, 213, 225, 274–275
 Alpha-linolenic acid, 225
Linum usitatissimum (flax), 318, 343–344
 Lip balms, 12–13
 Lipid-free liquid cleansers, 120
 Lipids
 composition and dry skin, 94–96
 delipidization, 45–47
 hyperproliferative disorders, 94–95
 personal cleanser pH, 52
 stratum corneum, 81–84
 Lipogenesis, 102–107
 Alpha-lipoic acid, 196, 210, 225, 391–393
 Liposuction, 133–134
 Lips, 10–13
 Liquid personal cleansers, 39–40, 56
 Liquiritigenin, 208–209, 214
 Liquiritin, 208–209, 214, 226
 Liver activated receptor (LXR), 101–102
 Log P values, 369–370
 Loofahs, 238
 L-selenomethionine, 384–385, 386, 387
 LXR. *See* liver activated receptor
 Lymphedema, 326
- Macrolide antibiotics, 284
 Magnesium-L-ascorbyl-2-phosphate (VC-PMG), 210
Mahonia aquifolium (Oregon grape), 335
 Makeup removal, 38–39
 Malassezia globosa, 19–20
 Male genitalia, 25–26
 Male grooming, 407
 Male skin, 27–28
 Malignant melanoma, 153
 Maltobionic acid, 241
Malus domestica (apple), 338
 Mandelic acid, 240
 Manual exfoliation *see* physical exfoliation
 Marigold (*Calendula officinalis*), 345
 Market future trends, 407
 Marketing claims, 201
 Marsh marigold (*Caltha palustris*), 313, 314, 316, 327
 Mastitis, 323
 Mastodynia, 323
Matricaria recutita (German chamomile), 318, 332
 MED. *See* minimum erythema dose
 Medical mimics, 405
 Medications
 hyperhidrosis, 133
 hyperpigmentation induction, 221
Melaleuca alternifolia (tea tree), 336
Melaleuca leucadendra (cajuput), 343
 Melanoma incidence increase, 153
 Melanosome transfer reduction, 211–212
Melilotus officinalis (sweet clover), 346–347
Melissa officinalis (lemon balm), 334
 Membrane permeability, 50
Mentha spicata (spearmint), 341–342
 Mesh puffs, 238
 Metronidazole, 361
 Microbial contamination, 303
 Microdermabrasion, 228, 239, 247
 Microflora, 53
 Microgel complexes, 256–257
 Miliaria, 323
 Milk thistle (*Silybum marianum*), 318, 334
 Mimics, 405
 Minimum erythema dose (MED), 137
 Minocycline, 284
 Moisturization and moisturizers, 14, 19, 23, 115–120, 181

- Monomethyl of hydroquinone, 221–222
- Morbidity, complication-causing
botanicals, 315
- Morinda citrifolia* (noni), 340
- Mortality, complication-causing
botanicals, 314
- Morus alba* (mulberry), 207
- Mucocutaneous complications
botanicals, 312, 313–317, 323
isotretinoin, 287
- Mucocutaneous pruritus, 323
- Mucositis, 316
- Mulberry (*Morus alba*), 207
- Myroxylon balsamum* (Peruvian balsam),
345–346
- Myrtle (*Myrtus communis*), 339–340
- Myths/herbal medicine, 310
- N_6 -furfuryladenine. *See* kinetin
- N*-acetyl-4-*S*-cystalminylphenol (NA-CAP),
224
- N*-acetylglucosamine (NAG), 243, 246–247
- Nails, 16–19
- Nanofiltration, 302
- Nanotechnology, 407
- National Institutes of Health (NIH), 147–148
- Natural exfoliation, 237
- Natural ingredients future trends, 404–405
- Natural moisturising factors (NMF), 90–92
- Natural repair systems, 405
- Neck, 21–22
- Necrosis, 317
- Neem (*Antelaea azadirachta*), 334
- New user future trends, 407
- NFAT activation, 359–360
- NF- κ B transcription factor, 354–356
- Niacinamide
anti-aging formulations, 170–174, 182
barrier augmentation, 104–106, 107
cosmeceuticals, 193–194
moisturizer formulations, 119
skin lightening agents, 211
See also vitamin B3
- Nicotinamide. *See* niacinamide
- Nicotinate esters, 170, 171, 174
- Nicotinic acid, 170, 171, 174
- Nigella sativa* (black seed), 329
- Night creams, 119
- NIH. *See* National Institutes of Health
- NMF. *See* natural moisturising factors
- Nomenclature
sunscreens, 156
toners and astringents, 67–68
- Nonacnegenic claim, 34
- Noncomedogenic claim, 34
- Noni (*Morinda citrifolia*), 340
- Noninflammatory acne, 276
- Nonionic surfactants, 42
- Non-phenolic depigmenting agents, 224–225
- Non-steroidal anti-inflammatory drugs
(NSAIDs), 357–358
- Nutraceuticals, 262, 405
- Nutritional antioxidants, 377–395
- Oak (*Quercus robur*), 318, 345
- Oat (*Avena sativa*), 345
- Occlusive agents, 118–119
- Office dispensing, 189
- Oily skin, 72
- Olea europaea* (olive), 340
- Oleic acid, 225
- Oligomeric proanthocyanidins (OPCs), 332–333
- Olive (*Olea europaea*), 340
- Onion (*Allium cepa*), 334–335
- Onycholysis, 17
- Oolong tea, 336–337
- OPCs. *See* oligomeric proanthocyanidins
- Optical technology future trends, 406
- Optimal skin care product selection, 115–121
- Opuntia ficus-indica* (cactus pear), 338
- Opuntia streptacantha* (prickly pear), 340
- Oral antibiotics, 281–286
- Oral contraceptives, 285, 286, 287
- Oral supplements, 262
- Oregon grape (*Mahonia aquifolium*), 335
- Organic products, 404–405
- Orthohydroxybenzoic acid. *See* salicylic acid
- Over-the-counter drugs (OTD), 125
- Over-the-counter (OTC), acne
medications, 251–268
adjunctive acne products, 260–262
advances, 254–268
alpha hydroxy acids, 262
benzoyl peroxide, 257–259
botanicals, 260
capryloyl salicylic acid, 261
clinical considerations, 252
clinical imaging in product development/
evaluation, 266–268
combination therapy, 262–266
formulations, 253
monograph, 252–253
nutraceuticals, 262
oral supplements, 262
retinaldehydes, 260–261
salicylic acid, 254–257, 280, 281, 282
sulfur, 259–260
sulfur/resorcinol combinations, 259–260

- [Over-the-counter (OTC), acne medications]
 tea tree oil, 260
 trends, 254
- Over-the-counter (OTC), topical anti-inflammatories, 353–361
- Oxidation, 175
- PABA. *See* para-aminobenzoic acid
- Packing states, 82–83
- Pads, salicylic acid, 255
- Pal-KTTKS, 176–178, 182
- Palmar hyperhidrosis, 14
- Palmar psoriasis, 14
- Palmitoyl-lysine-threonine-threonine-lysine-serine (pal-KTTKS), 176–178, 182
- Panax ginseng* (ginseng), 338–339
- Panax quinquefolius* (ginseng), 338–339
- Panthenol (vitamin B5), 194
- Papaya (*Carica papaya*), 318, 340
- Paper mulberry extract, 207
- Para-aminobenzoic acid (PABA), 157–158
- Parallel-polarized light imaging, 263, 266
- Paronychia, 18–19
- Patented ingredients, 70–71
- Pathogenesis, acne, 273–276
- Pathophysiology
 soap-induced dry skin, 94–96
 winter-induced dry skin, 94–96
- PCR. *See* polymerase chain reaction
- Pediculosis, 324
- Peels, 227–228
- Penetration assessment, 368–370
- Penetration enhancers, 370
- Peppermint, 318
- Peptides, 176–178, 182
- Percutaneous absorption analysis, 370–372
- Perleche, 12
- Peroxisome proliferator activated receptor (PPAR), 101–102
- Peroxyl free radicals, 380, 388
- Personal cleansing products, 35–59
 choice considerations, 54–59
 cleansing efficiency tests, 36–40
 delipidization, 45–47
 effects on skin, 40–54
 fragrances, 54
 pH effects, 50–53
 skin cleansing, 35–40
 soil removal, 35–36
 surfactant types, 40–42
 surfactant–protein interactions, 47–49
 surfactant–skin interactions, 42–53
- Peruvian balsam (*Myroxylon balsamum*), 345–346
- Pesticides, 303–304
- Petrolatum, 39–40, 41, 54
- Petroleum jelly, 100
- Petroselinic acid, 102
- PH
 cleansers, 279, 280
 definition, 50
 hydroxy acids formulation, 244
 personal cleansing products, 50–53
 stratum corneum, 91
 toners and astringents, 73
- PHAs. *See* polyhydroxy acids
- Phenolic depigmenting agents, 221–224
- Phoenix dactylifera* (date palm), 330–331
- Photoaging
 features, 136
 selenium, 385–386
 ubiquinone (coenzyme Q10), 394–395
- [Photoaging]
 vitamin C, 379
 vitamin E, 383
- Photocarcinogenesis prevention, 153–162
- Photodamage, 21, 393
- Photodermatosis, 323
- Photodynamic therapy, 291–292
- Photography, 266
- Photoprotection, 119–120, 153–162, 381.
See also sunscreens
- Photoreactions, 316
- Photostability of sunscreens, 156
- Phototherapy, 291
- Physical conditions/personal cleanser efficiency tests, 38
- Physical exfoliation, 237, 238–239
- Physical modalities, acne, 290–291
- Physical sunscreens, 159
- Physical therapies for skin lightening, 226–230, 231
- Physiology. *See* anatomy and physiology
- Phytoestrogens, 389
- Phytosphingosine, 106
- Pigmentary disorders. *See* hyperpigmentation; skin lightening
- Pigmentation, formulation issues, 29–30
- Pigment dye lasers, 230
- Pigment-specific lasers, 229–230, 231
- Pimecrolimus, 358–360, 361
- Pimpinella anisum* (anise), 328–329
- Pineapple (*Ananas comosus*), 319, 346
- Pinus pinaster* (French maritime pinebark), 332–333
- Plantago lanceolata* (English plantain), 343
- Plantar warts, 16

- Plant growth factors, 195–196
Plants. *See* botanicals
Poikiloderma, 21
Polarized light imaging, 263, 266
Polyhydroxy acids (PHAs), 237, 241–244
Polymerase chain reaction (PCR), 365–366
Pomegranate (*Punica granatum*), 335
Poplar (*Populus* spp.), 346
Pores, 4–5
Postinflammatory hyperpigmentation, 29
Powder-based roll-on, 130
PPAR. *See* peroxisome proliferator activated receptor
Prescription treatments
 anti-inflammatories, 353–361
 hyperhidrosis, 133
 skin lightening, 222
Preventive measures in pigmentary disorders, 231
Prickly pear (*Opuntia streptacantha*), 340
Processing of botanicals, 310–311
Product claims, 73–74
Product reduction, 209–211
Product selection for optimal skin care, 115–121
Product stability, 73
Profilaggrin catabolism, 91
Progestins, 286–287
Propionibacterium acnes, 275–276
Proteins, 47–49
Pruritus, 317, 323, 324
Pruritus ani, 324
Pseudotumor cerebri, 284, 288
Psoriasis
 botanicals, 324
 complication-causing botanicals, 317
 hands, 14
 nails, 18
 scalp, 20
 tazarotene, 277–278
Psychological impact of acne, 251, 273
Pterocarpus santalinus (red sandalwood), 320, 324
Puberty formulation issues, 28
Puffs, 238
Pulse-dye pigment lasers, 229
Pumpkin (*Cucurbita pepo*), 340
Punica granatum (pomegranate), 335
Purification techniques, 301–302
Purpura, 317
Pustular, 317
Pycnogenol (PYC), 332–333
Q-switched alexandrite lasers, 228–229
Q-switched Nd-Yag lasers, 229
Q-switched ruby lasers, 229
Quality issues, topical botanicals, 303–304
Quality of life, acne, 251
Quasi-drugs, 125–126
Quercetin, 362–363
Quercus robur (oak), 318, 345
Race and body cleanser choice, 57–59
Radiation dermatitis, 324
Raptiva, 360
Razors, 24, 238–239
Reactive oxygen species, 209–211
Red-rooted sage (*Salvia miltiorrhiza*), 320
Red sandalwood (*Pterocarpus santalinus*), 320, 324
Regulatory issues
 antiperspirants, 124–126
 botanicals, 311
 cosmeceuticals, 191–192
 sunscreens, 144–145
Rejuvenation systems future trends, 405
Repair of epidermal barrier, 117
Residence time, 371–372
Resistance to antibiotics, 285–286
Resorcinol, 259–260
Retinaldehydes, 167, 260–261
Trans-retinoic acid, 167, 168, 170
13-Cis retinoic acid. *See* isotretinoin
Retinoid dermatitis, 278
Retinoids
 acne, 276–279, 287–288, 290
 anti-aging formulations, 167–170, 182
 future trends, 404
 isotretinoin, 287–290
 patient information, 278
 skin lightening agents, 225
Retinol, 167, 168–169
 moisturizer formulations, 119
Retinyl esters, 167–168, 169
Retinyl propionate, 167–169, 182
Reverse transcriptase-polymerase chain reaction (RT-PCR), 365–366
Rigid corneocyte envelopes, 88–90, 96
Rosacea, 32, 361
Rosemary (*Rosmarinus officinalis*), 341
Roughening, 37
RT-PCR. *See* reverse transcriptase-polymerase chain reaction
Rue (*Ruta graveolens*), 316, 319, 322, 324, 325
 Ruta graveolens (rue), 316, 319, 322, 324, 325
 Ruta spp. (rue), 319
Ruscus aculeatus (butcher's broom), 343

- RWJ-50353 211–212
- Safety
 benzoyl peroxide, 258
 sun strategy, 135, 146–148
 topical botanicals, 304
- Sage (*Salvia officinalis*), 346
- St. John's Wort (*Hypericum perforatum*), 302, 303, 319, 335–336
- Sales growth of cosmeceuticals, 189
- Salicylates, sunscreens, 158–159
- Salicylic acid
 acne, 279, 280, 282
 exfoliation, 237, 244–246
 OTC acne medications, 253, 254–257, 264–265
 over-the-counter acne medications, 279, 282, 283
 skin lightening, 227
 See also beta hydroxy acids
- Salvia miltiorrhiza* (red-rooted sage), 320
- Salvia officinalis* (sage), 346
- Sandalwood (*Santalum album*), 341
- Sandwich assay, 364
- Sandwich model, 83
- Sanguinaria canadensis* (Bloodroot), 304
- Sanguinarin, 304
- Santalum album* (sandalwood), 341
- Sarsaparilla (*Smilax medica*), 341
- Saw palmetto (*Serenoa repens*), 319, 341
- Scabies, 324
- Scaling, 98
- Scalp, 19–21
- Scarlatina, 322
- Scars, 383
- SCCE. See stratum corneum chymotryptic enzyme
- Scientifically rational herbs, 312, 337–342
- Screening assays, 363–368
- Scrofulosis, 324
- SCTE. See stratum corneum tryptic enzymes
- SCTP. See stratum corneum thiaol protease
- Sebaceous glands, 5
- Seborrheic blepharitis, 9
- Seborrheic dermatitis, 6–7, 19–20
- Sebum production, 275
- Selenium, 384–387
- L-Selenomethionine, 384–385, 386, 387
- Self-tanning products, 141–143, 406
- Sensitive skin, 31–32, 71–72
- Serenoa repens* (saw palmetto), 319, 341
- Sesame (*Sesamum orientale*), 341
- Severe complications of botanicals, 312, 313–317
- Shaving, 238–239
- Shepherd's purse (*Capsella bursa-pastoris*), 346
- Sialorrhea, 317
- Side effects
 benzoyl peroxide, 258
 biologic response modifiers, 360–361
 botanicals, 311–319
 herbal medicine, 310
 isotretinoin, 287–290
 toners and astringents, 75
- Signaling pathways, 354–355
- Silybum marianum* (milk thistle), 318, 334
- Simmondsia chinensis* (jojoba), 339
- Single-nucleotide polymorphism (SNP), testing, 201
- Sjogren's syndrome, 324
- Skin cancer, 154–155
- Skin Cancer Foundation, 147
- Skin color formulation issues, 29–30
- Skin compatability
 sunscreens, 140–141
 surfactants structural considerations, 42–45
- Skin feel of sunscreens, 141
- Skin inflammation. See inflammation
- Skin lightening
 astringents, 70
 botanicals, 226
 chemical peels, 227–228
 cosmeceuticals, 222, 225–226
 cosmetic formulation, 205–214
 dermabrasion, 228
 future trends, 406
 lasers, 228–230
 medical and surgical approaches, 219–232
 melanosome transfer reduction, 211–212
 microdermabrasion, 228
 physical therapies, 226–230, 231
 prescription agents, 222
 product reduction, 209–211
 reactive oxygen species, 209–211
 skin turnover acceleration, 212–213
 therapeutic approach example, 230–231
 toners, 70
 topical depigmenting agents, 221–226
 traditional Chinese medicine, 213
 tyrosinase inhibition, 205–209
- Skin penetration assessment, 368–370
- Skin roughening, 37
- Skin tone alteration future trends, 406–407
- Smilax medica* (sarsaparilla), 341

- Snakebites, 324
- SNP. *See* single-nucleotide polymorphism
- Soap
- acne, 279
 - anionic surfactants, 41
 - basic cleanser formulations, 120
 - body cleanser choice, 56
 - facial cleanser choice, 55
 - surfactant–skin interactions, 43–44
- Soap-free synthetic detergent bars, 120, 279
- Soap-induced dry skin pathophysiology, 94–96
- Social impact of acne, 251, 273
- SOD. *See* superoxide dismutase
- Sodium bicarbonate, 239
- Sodium chloride, 239
- Sodium sulfacetamide, 281
- Soil removal, 35–36
- Solanum dulcamara* (bittersweet nightshade), 342
- Solanum nigrum* (black nightshade), 329
- Solubility, 369–370
- Solvent extraction, 301
- Sophorcarpidine, 213–214
- Sorb apple (*Sorbus domestica*), 323
- Sorbus domestica* (sorb apple), 323
- Soybean trypsin inhibitor (STI), 212
- Soy extract, 387–391
- Soy (*Glycine soja*), 319, 335
- Spearmint (*Mentha spicata*), 341–342
- Species selection, 298
- SPF. *See* sun protective factor
- Spirolactone, 286
- Stability
- cosmeceuticals, 190
 - cosmeceuticals formulation selection, 199–200
 - toners and astringents, 73
 - vitamin C, 175
- Steam distillation, 301
- Steroids, 353–357
- STI. *See* soybean trypsin inhibitor
- Sticks, 130
- Stomatitis, 316, 317, 320, 324–325
- Stratum corneum
- barrier augmentation, 101–107
 - corneocytes envelope maturation, 87–90
 - corneodesmolysis, 84–87, 107
 - corneodesmosomes, 84–87
 - dry skin cycle model, 96–99
 - dry skin management, 99–107
 - face, 5
 - lipid biophysics, 81–84
 - lipid chemistry, 81–84
 - maturation, 107
 - [Stratum corneum]
 - natural moisturising factors, 90–92
 - structure, 80–81
 - surfactant–protein interactions, 47–49
 - water holding mechanisms, 79–80
- Stratum corneum chymotryptic enzyme (SCCE), 85–87
- Stratum corneum thiol protease (SCTP), 85
- Stratum corneum tryptic enzymes (SCTE), 85, 87
- Styes, 325
- Sulfur, 259–260
- Sulfur/resorcinol combinations, 259–260
- Sulfur–sodium sulfacetamide, 281
- Sunburn, 137, 358
- Sunless tanning products, 141–143, 406
- Sun protective factor (SPF), test, 136, 137–139, 156
- Sun safety, 146–148, 160, 231
- Sunscreens, 8, 135–149
- approved active ingredients, 156, 157
 - chemical sunscreens, 157–159
 - formulation challenges, 143–144
 - function, 136–139
 - hands, 15
 - hyperpigmentation therapeutic approaches, 223
 - mechanisms of action, 156–159
 - moisturizer formulations, 119–120
 - photocarcinogenesis, 156–159
 - photostability, 156
 - physical, 159
 - products, 139–141
 - regulatory issues, 144–145
 - safe sun strategy, 146–148, 160
 - types, 156–159
 - UV filters active ingredients, 136–137, 139, 145
- Superoxide dismutase (SOD), 194–195
- Surfactants
- soil removal, 36
 - types in personal cleansing products, 40–42
- Surfactant–protein interactions, 47–49
- Surfactant–skin interactions
- delipidization, 45–47
 - environmental effects, 49
 - personal cleansing products, 42–53
 - pH, 50
 - stratum corneum lipids, 46–47
 - surfactant structural considerations, 42–45
 - synthetic detergents, 44–45
 - temperature effects, 49
- Sweat glands excision, 133–134
- Sweating (hyperhidrosis), 14, 131–134, 321

- Sweet clover (*Melilotus officinalis*), 346–347
- Swelling response, 50, 51
- Symphytum officinale* (comfrey), 328
- Syndets, 120, 279
- Synergistic reactions, 190
- Synthetic detergents, 44–45. *See also* syndets
- Syphilis, 325
- Syzygium cumini* (jambolan), 344
- Tacrolimus, 358–360, 361
- Tanning, 141–143, 406
- Tazarotene, 225, 277–279
- Teas (*Camellia sinensis*), 336–337
- Tea tree (*Melaleuca alternifolia*), 260, 336
- Temperature effects, surfactant–skin interactions, 49
- Teratogens, 290
- Tests
 - cosmetic extracts safety, 304
 - personal cleanser efficiency, 36–40
 - sunscreens, 137–139
 - toners and astringents claims, 74, 75
- Tetracyclines, 281–283
- Teucrium scorodonia* (wood sage), 327
- TEWL. *See* transepidermal water loss
- Therapeutic uses of botanicals, 312, 320–327
- Thickening ingredients, 70
- Thioctic acid (alpha-lipoic acid), 196, 210, 225, 391–393
- Tightness, dry skin cycle, 99
- Tinea capitis, 20
- Tinea pedis, 15
- Tinea unguinum, 17
- Titanium oxide, 159
- T-lymphocytes, 353
- TNF-alpha inhibitors, 360, 361
- D-alpha-tocopherol, 382
- Alpha-tocopherol, 210–211
- All-*rac*-alpha-tocopheryl acetate, 381
- Toners and astringents, 67–76
 - adverse reactions, 75
 - claims testing methods, 74, 75
 - dermatology uses, 74–75
 - facial cleansing, 55–56
 - formulations, 68–73
 - functions, 68
 - ingredients, 68–70
 - new and patented ingredients, 70–71
 - product claims, 73–74
 - product forms, 68–70
 - skin types, 71–73
- Topical therapies
 - antibiotics, 281
 - anti-inflammatories, 351–373
 - [Topical therapies]
 - botanicals, 297–305
 - comedolytics, 253
 - cosmeceuticals, 225–226
 - desmolytics, 237, 244–246
 - exfoliation, 237–247
 - nutritional antioxidants, 377–395
 - pigmentary disorders, 221–226, 231
 - retinoids, 276–278
- Toxicology of topical botanicals, 304
- Traditional Chinese medicine, 213
- Transcription factors, 354–356
- Transepidermal water loss (TEWL), 6, 53
- Transglutaminases, 87–90
- Trans-retinoic acid, 167, 168, 170
- Treponema pallidum*, 325
- Tretinoin, 225, 227, 228, 277–279, 404
- Triamcinolone, 291
- Trichloroacetic acid peels, 227
- Trigonella foenum-graecum* (fenugreek), 318, 343
- Trimethoprim/sulfamethoxazole, 285
- Tripeptide copper glycine-histidine-lysine (Cu-GHK), 176–178
- Triterpenoids, 180
- Triticum aestivum* (wheat germ), 342
- Tumescent liposuction, 134
- Turmeric (*Curcuma domestica/longa*), 330
- Tyrosinase inhibition, 205–209
- Ubiquinone (coenzyme Q10), 181, 196, 393–395
- Ulcers, 317, 325
- Ultrafiltration, 302
- Ultraviolet A (UVA), 154, 155, 157–159
- Ultraviolet A (UVA) Protection Factor, 138
- Ultraviolet B (UVB), 154, 155, 157–159
- Ultraviolet (UV) radiation
 - acne, 289
 - anti-inflammatories clinical study, 372–373
 - approved filters, 136–137, 139, 145
 - erythema study, 372–373
 - genistein, 387–388
 - induced immunosuppression, 378, 379
 - induced skin damage, 387–388
 - photocarcinogenesis, 153–162
 - skin cancer development relationship, 154–155
 - skin damage, 135–136
 - spectral differences related to photocarcinogenesis, 155
- UVA, 154, 155, 157–159
- UVA-I, 136, 138, 148
- UVA Protection Factor, 138

- [Ultraviolet (UV) radiation]
 - UVB, 154, 155, 157–159
 - Vitamin C, 378, 379
- Underarms, 23–24
- United States regulations, 125, 191
- Unsaturated fatty acids, 225
- Urticaria, 317
- UV. *See* ultraviolet

- Valarian (*Valeriana officinalis*), 302–303
- Value, cosmeceuticals formulation
 - selection, 200
- Varicosities, 326
- VC-PMG. *See* magnesium-L-ascorbyl-2-phosphate
- Vehicles, 73, 253
- Venous insufficiency, 326
- Venous stasis, 326
- Vermillion, 11
- Viola tricolor* (heartsease), 344
- Viral infections, 16, 322
- Visible light, 263, 265, 291
- Vitamin A, 119, 167–170, 182
- Vitamin B3, 170–174, 182, 193–194, 211.
 - See also* niacinamide
- Vitamin B5 (panthenol), 194
- Vitamin C, 174–176
 - anti-aging formulations, 174–176
 - antioxidants, 174
 - cosmeceuticals, 193
 - skin lightening agents, 209–210, 225
 - topical nutritional antioxidants, 377–379, 386
- Vitamin D, 135, 160–161
- Vitamin E, 193, 210, 379–383, 386–387
- Vitamin K, 193

- Vitex agnus-castus* (chaste tree), 318, 343
- Vitis vinifera* (grape seed), 332–333

- Walnut (*Juglans regia*), 347
- Warts, 326
- Washcloths, 238
- Water
 - based roll-on antiperspirants, 130
 - content of epidermal barrier, 116–117
 - hardness and personal cleanser skin compatibility, 49
 - holding of stratum corneum, 79–80
 - skin cleansing, 36
- Western herbal mix (WHM), 337
- Wheat germ (*Triticum aestivum*), 342
- White birch (*Betulae folium*), 342
- Whiteheads. *See* comedos
- White nettle (*Lamium album*), 347
- Whitening agents. *See* skin lightening
- White tea, 336–337
- White willow, 319
- WHM. *See* Western herbal mix
- Wildcrafting, 298
- Winter-induced dry skin, 94–96
- Witch hazel (*Hamamelis virginiana*), 337
- Woad (*Isatis tinctoria*), 297
- Wood sage (*Teucrium scorodonia*), 327
- Wound care, 326–327, 383
- Wrinkles, 168–169, 175

- Xerosis, 96–99, 317, 327
- Xerostomia, 317

- Yeasts, 11–12

- Zinc oxide, 159

