

# Index

*Note:* Page numbers in *italics* refers to figures and tables.

## A

Acetone treatment, 54, 67, 108, 110–112, 129, 232, 240  
N-acetylcysteine, 90  
'Acid mantle', 161, 190  
Acidic phospholipid autacoid, 345–346  
Acid-sphingomyelinases, 164  
Acitretin, 90  
Acne Vulgaris, 303, 329  
Acute skin irritation, 504–505  
Acute toxicity, 525  
Acylglucosylceramides (AGCs), 322, 343, 345  
N-acylphosphatidylethanolamine, 302  
Adenosine triphosphate (ATP), 26, 65–66, 92, 324  
Adrenergic  $\beta 2$  receptor, 155, 156  
Aescin, 304  
Aged dry skin  
  amino acids and filaggrin in, 120  
  bathing and cleansing in, 122  
  biophysical measurements in, 119  
  epidermal differentiation in, 120  
  epidermal lipids in, 121  
  light and electron microscopy studies in, 119  
  sebaceous lipids in, 122  
  therapy of, 123  
  urea and glycerol in, 121  
Agonists, 112, 155–156, 323  
Akimoto, K., 121–122  
Akiyama, H., 394  
Alcalase, 176, 180  
Alkyl poly glucosides (APG), 416–418, 418  
Allergic contact dermatitis, 393, 468, 490, 490–492, 517–518  
  caused by emollients, 140  
  cosmetic dermatitis caused by, 488  
  and fusidic acid, 398  
  and patch testing, 494, 496, 505  
  studied using petrolatum, 293  
Alpha hydroxy acids (AHAs), 88–89, 139–140, 198–199  
Ambient air temperature, and humidity, 453  
Amino acids, 75, 163–165, 189–194, 229, 262, 415, *see also* Free amino acids  
  in dry and aged dry skin, 120–121, 197  
  and humidity, 228  
  as natural moisturizing factor, 3, 86, 95–96, 189  
  in stratum corneum, 95–96, 104, 110  
Ammonium hydroxide blister test, 476, 493  
Amonton's law, 431–434, 444  
Anatomical sites, 163, 438, 453, 511  
Anderson, D.S., 104

Antagonists, 3, 58, 112, 130, 155–156, *see also*  
  Histamine receptor antagonists  
Antibiotics, 392, 394–399, *see also* Antibiotic-steroid  
  combination therapy; Systemic antibiotics;  
  Topical antibiotics; Intact skin; Systemic  
  antibiotic therapy  
Antibiotic-steroid combination therapy, 398–399  
Antirritants, 497  
Antileukoprotease, 76–77  
Antimicrobials  
  composition and function of, 392–396  
  effects of, on skin barrier function, 396–399  
Antioxidant vitamins, *see* Vitamin C; Vitamin E  
Antioxidants, 258, 302, 306, 326, 517–518  
  role of, in skin aging prevention, 122  
  salicylic acid as, 137  
Antiseptics, 392–394, 396–400, *see also* Antimicrobials  
  in Atopic dermatitis and bacterial infection,  
  prevention of, 91  
Apoptosis, 54–55, 253, 323–325  
  modulation of, 326–330  
Aquaporin-3, 121, 235–236  
Arachidonic acid (AA), 320–330  
Arnold, W.P., 344  
Ascorbic acid, *see* Vitamin C  
Asserin, J., 438  
Atopic dermatitis (AD), 95–104, 391, 394, 397–400  
Atopy, 92, 327, 488, 492, 496  
Atropine, 130  
Aurothiomalate, 261  
Autosomal dominant ichthyosis vulgaris (IV), 84–87

## B

*Bacillus licheniformis*, 176, 179, 395  
*Bacillus subtilis*, 181, 395  
*Bacitracin* ointment, 294, 395  
Barel, A.O., 453  
Barium sulfate, 156–158  
Barnett, G., 310, 314  
Barrier disruption, 107–113, 155–157, 156, 236, 302, 353, 475  
Barrier lipids, 12–16, 18, 27, 71, 136, 199, 454  
  and corneocytes, 10–11  
  in SC maturation, 177  
Barrier malfunction, 128–129  
Barrier penetration, 17–18  
Barrier recovery, 54, 67, 108, 112, 123, 155–158, 164–166, 218, 236, 239, 312, 353, 369  
Barrier repair mechanism, 67–68

'Barrier', stratum corneum as, 2  
 Batt, M.D., 229, 234  
 Bentonite, 66  
 Berardesca, E., 199, 488, 495  
 Bernard, D., 172  
 Betaine, 214–215, 301–303, 306  
 Betamethasone, 138, 140  
 Bettinger, J., 232–233, 239  
 Bieli, E., 137  
 Bioengineering equipment, for assessing skin irritation, 508–510  
 Bioengineering methods  
   to measure skin responses to chemical probes, 476  
   in sensitive skin research, 495  
 Bioprase, 181  
 Biotin, *see* Vitamin H  
 Bisset, D.L., 73, 176, 230  
 'Black box', 17, 36, 202  
 Blank, I.H., 3, 187, 198, 475  
 Blankschtein, D., 416  
 Bottoms, E., 432–433, 435, 438  
 Bouwstra, J.A., 17  
 Bovine pancreatic chymotrypsin, 75, 176, 179, 180  
 Bradford assay, 460  
 Brick and mortar model, 15, 171  
 Bullous Ichthyosis, 83, 88, 90–91  
 Burckhard, W., 477  
 Burkhardt, C.G., 56  
 Burnham, J.C.V., 56  
 Burr, G.O., 319  
 Butcher, E.O., 313  
 Butylene glycol, 489, 517

## C

Cadaver skin dermis, 266  
 Calciferol, *see* Vitamin D  
 Calcinosis cutis, 65–66  
 Calcipotriol, 87, 90, 137, 150, 382–383  
 Calcitonin gene-related peptide (CGRP), 129  
 Calcium, regulation of, 65–66  
 Calcium and barrier repair mechanism, 67–68  
 Calcium cell signaling, 54  
   mechanism of, 63–65  
 Calcium gradient, 26, 66–67, 255  
 Calcium ions, role of, 17, 63–68, 92, 155, 231  
 Callus, 3, 121  
 Cancer chemoprevention, 327  
*Candida albicans*, 176, 344, 394  
 Capacitance, 198, 213–217, 237, 291, 420, 421, 424, 453, 495, 510  
 Carbon sources, in the epidermis, 25–26  
 Carcinogenicity, 525, 526  
 Carotenoids, 375, 377, 380–381  
 Caspase, 14, 173  
 Castor oil, in epidermis, 517  
 Catabolism, 27  
 Cathepsin D, 172–174, 181, 232  
 Cell signaling, and EFA, 324–325  
 Cellular retinoic acid binding proteins (CRABP), 380  
 Ceramide-1-linoleate, 121  
 Cetearyl isonanoate, 517  
 Chamber scarification test, 491, 497  
 Chapman, S.J., 74, 76  
 Charbonnier, V., 491  
 Chemical probes, 476, 476, 482–483  
 Chemokines, 3, 504  
 Chesebrough, R.A., 289–290  
 Chlorhexidine, 392–393, 396–398  
 Chloroform: methanol burning test, 476  
 Chloroform-methanol pain threshold, 494  
 Cholesterol sulfate (CS), 17, 27, 72, 76, 77, 86, 229, 344  
 Cholesterol, and free fatty acids, 15  
 Cholinergic receptor, 156  
 Chopart, M., 174  
 Christophers, E., 137  
 Chromametry, 476, 495  
 Chronic inflammation, 246, 258, 379  
 Chronological aging, 118, 124, 257–258  
 Chronologically and photo-aged skin, dryness in, 117–124  
 Chvapil, M., 313  
 Ciprofloxacin, 306  
 Ciproxin, 306  
 Citric acid, 263–264  
 Citrulline, 96, 98, 101–103, 197  
 Clark, E.W., 310–311  
 Clarys, P., 453  
 Cleansers  
   consumer desired qualities in, 408  
   effect of, measurement, 420–425  
   moisturization measurement from, 419–425  
   moisturizing cleansers, 405–426  
   surfactant-based, 355–356  
 Cocoamido propyl betaine (CAPB), 416–418  
 Coefficient of friction, 234  
   measurement of, 431–440  
 Collagen, stabilization of, 235  
 Colorimetric methods, 162, 195  
   based on protein determination, 460  
 Comaish, J.S., 432–433, 435, 438  
 Common ichthyosis, 84, 92  
   treatment of, 86–87  
 Complex, 15, 304  
 Congenital ichthyosis with fine/focal scaling (CIFS), 88  
 Conjugated linoleic acid (CLA), 329  
 Consumer perception, 407–409, 413, 420, 488  
   profile of, 408  
 Contact urticaria syndrome (CUS), 490–492, 494, 496–497, 518  
 Corneocytes, 15–16, 63, 71–74, 77, 84, 86–90, 172–180, 187–195, 361, 465–469, *see also* Corneocyte surface area  
   for the barrier lipids, 10–11  
   formation of, 38, 66  
   structure of, 11–12  
 Corneocyte surface area, and glycerol, 236–238  
 Corneodesmolysis, 131, 171–174, 177, 199, 228, 240, 467  
 Corneodesmosin (Cdsn), 74, 171–174, 232  
 Corneodesmosomes (CD), 11, 136, 177, 188, 200, 228, 231  
   degradation of, 74–76, 173, 191  
   and desmosomes, 73–74  
 Corneometer, 119, 123, 237, 451–453, 495, 504, 510  
 Cornification, 2, 23, 32, 54–55, 64, 71–75, 345  
   and epidermal differentiation, 120

- lipids during, 229
  - and ornithine conversion, 100
  - and PPAR $\alpha$  activation, 112
  - Cornified cell envelope (CE), 38, 88, 188, 191–192, 228, 465
  - Corticosteroids, 2, 87, 123, 136–140, 150, 294, 397–399, 492
    - combinations with, 216–217
    - evaluation of, 468
  - Cosmetic allergens, 491
    - in moisturizers, 515–518
  - Cosmetic products
    - and ‘Haptic Finger’, 448
    - and photo-induced toxicity, 526
    - and skin pH, 165–166
  - Cosmetic xerosis, 171
  - Cotterill, J.A., 493
  - Covered patch test, 505
  - Creams, 152, 165, 200, 215–219, 406–407, 436–440
    - for dry and aged dry skin, 122–124
    - and ichthyosis, 86–88
    - for irritation protection, 232, 506
    - petrolatum in, 292–293
    - for psoriasis, 139
    - urea in, 198, 214
  - Critical aggregation concentration (CAC), 33
  - Critical micelle concentration (CMC), 33, 417
  - Cryo-electron microscopy, 37
  - Cryo-fixation, 37, 45, 47
  - Cryo-methods, for elemental analysis of tissue samples, 45, 49
  - Cryo-sectioning method, 38, 45, 47
  - Cryo-transmission electron microscopy, 33, 37–38
  - Cua, A.B., 435, 438
  - Cumulative irritancy test, 497
  - Cumulative skin irritation, 505–506
  - Cutaneous barrier function, 322
  - Cyanoacrylate skin surface stripping (CSSS), 466
  - Cyanocobalamin, *see* Vitamin B<sub>12</sub>
  - Cytokine profiling, 504
- D**
- Dale, B.A., 191, 192
  - Dansyl chloride test, 181
  - Darier’s disease, 92, 139
  - Davis, W.B., 229
  - De Paepe, K., 121
  - Dehydration, 2, 256, 285, 290, 310, 394, 421
    - in burn patients, 255
    - due to cleansers, 407, 409, 413
    - dehydration triggers, 172
    - for electron microscopic observation, 33, 37
    - glycerol preventing, 229–230, 232, 235, 238
    - versus hydration, 433
    - in surfactants, 396
  - Denda, M., 98, 111
  - Dermal fibroblasts, 118, 256, 258, 263–265, 346, 376
  - Dermal hyaluronan, 255–256
  - Dermal/percutaneous absorption, 525, 525
  - Dermatologic and cosmetic perspectives, 266–267
  - Dermatologic nondisease, 493
  - Dermatopharmacokinetic studies, 458, 461–462
  - Desmocollin, 1 (Dsc 1), 171–172, 174, 177–178, 180, 181, 232
  - Desmoglein, 1 (Dsg 1), 171–172, 174, 176, 183, 202, 232
  - Desmoplakins, 171
  - Desmosomal degradation, 74–76, 172, 188, 191, 228, 231–232, 414
  - Desmosomal glycoprotein desmoglein I (DG I), 74–75
  - Desmosomes, 10–11, 12, 64–65, 177–179, 413–414, 466
    - cells linked by, 172–173
    - and corneodesmosomes, 73–74
    - degradation of, *see* Desmosomal degradation
  - Desquamation, 2, 12, 15, 71–77, 111, 113, 136–138, 176–181, 228
    - cholesterol sulfate in, 27, 344
    - by corneodesmosomes degradation, 74–75
    - definition of, 231
    - enzymes involved in, 75–76
    - and epidermal sphingolipids, 342
    - estimated using squamometry R, 468
    - ethanol altering, 466
    - glycerol enhancing, 200, 204
    - lipids promoting, 353, 370
    - moisturizers promoting, 131, 232, 406, 413
    - regulation of, 76–77
    - retardation of, 86
    - skin diseases with, 72–73
    - and stratum corneum corneodesmosomes, corneodesmolysis, 171–174, 188
  - Desquamation disturbances, 72–73
  - Detergent resistant membrane fragments (DRMs), 39–40
  - Dextran sulfate, 261
  - Diacylglycerol (DAG), 65, 324, 328
  - Diapers usage, 292, 294
  - Diclac schmerzgel, 304
  - Diclofenac, 304, 306
  - Dietary sources, and EFA, 320–321
  - Diffusible ions, recycling of, 55
  - Di-isostearyl maleate, 514
  - Dimethicone, 304
  - Dimethyl sulfoxide (DMSO) test, 476, 481–483, 493
  - Dimethyl sulphoxide (DMSO) whealing test, 478
  - Dioscorides (Greek physiician), 309
  - 4-Diphenyl-acetoxy-N-methyl-piperidine (4-DAMP), 130
  - Diseased skin, and urea usage, 218–219
  - Dissimilar removal, of SC, 459
  - Dithranol, 135–137, 139–140, 218
  - DMSO reaction, 479–480
  - Docosahexaenoic acid (DHA), 321–322, 324–329, 468
  - Dolaut, 304
  - Domain mosaic model, 15–17
  - Dopamine 2-like receptors, 155, 156
  - Doppler flowmeter, 478
  - Downing, D.T., 122
  - DPM measurement, 284–285, 452–453
  - Draeos, Z.D., 294, 497
  - Draize test, 490, 502
  - Dry environment, 3, 113, 129, 157, 228
    - dry, scaly skin induced by, 111
  - Dry hand-skin grading scale, 183

- Dryness  
 in chronologically and photo-aged skin, 117–124  
 and ichthyosis, 83  
 itch associated with, 127–131  
 quantification of, 420  
 and scaling and flaking, 413–414  
 treatment with urea-formulations, 217
- Dry skin, 228–229, *see also* Aged dry skin  
 amino acids and filaggrin, 120–121  
 in atopic dermatitis, 95  
 bathing and cleansing in, 122  
 biophysical measurements in, 119  
 dry environment inducing, 111  
 epidermal differentiation in, 120  
 epidermal lipids in, 121–122  
 experimentally induced, 107–114  
 and hyperkeratotic conditions, 81–140  
 and itch, moisturizers in, 130–131  
 light and electron microscopy studies in, 119–120  
 new strategies to improve, 111  
 and NMF levels, 194–198  
 occlusive surfactant dressing inducing, 110–111  
 and proteases usage, 171–184  
 and SC tape stripping, 457  
 as a term, v  
 therapy of, 123–124  
 urea and glycerol in, 121  
 and uremic itch, 128  
 winter induced, 174–176
- Duhring, L.A., 3, 304
- Dunham, W.R., 324
- Duran-Reynals, F., 246
- Dysmorphophobia, 490, 493
- E**
- Ecofenac Lipogel, 304
- Econazol, 304
- Eczema, 117, 123, 221, 222, 327, 330, 384, 396–398
- Eczéma craquelé, 117
- Edema, 249, 265, 382, 395, 489, 508, 509
- Egelrud, T., 73
- Eicosanoids, 203, 320, 326–329  
 production of, 322–324
- Eicosapentaenoic acid (EPA), 139, 321–329
- Elbow test, 506
- Electric bilayers, 157
- Electrical methods, for skin moisturization assessment, 451–454
- Electroencephalography, 66
- Electromyography, 66
- Electron and proton probes, 56–59  
 comparisons between, 49
- Dryness  
 in chronologically and photo-aged skin, 117–124  
 and ichthyosis, 83  
 itch associated with, 127–131  
 quantification of, 420  
 and scaling and flaking, 413–414  
 treatment with urea-formulations, 217
- Element and trace element distributions, local variations of, 56
- Elements and strata, co-variations of, 54
- Elias, P.M., 2, 4, 15, 39, 54, 163, 190, 312
- El-Shimi, A.F., 431–433, 435, 438
- Elsner, P., 435, 438, 495
- Emollients, 84, 86–92, 294  
 as consumer goods, 152  
 emollient liquid BW, 421–426  
 and moisturizers, 436–438  
 in psoriasis, 139–140  
 and skin friction coefficients values, 433, 436
- Emulsifiers, 221, 304, 310, 355, 491, 497, 528  
 and excipients and humectants, 516–517  
 and irritation potential, 305  
 lanolin as an, 314  
 stearic acid as, 165
- Endocannabinoids, 301, 302, 306
- Endogenous causes, for sensitive skin, 492–493
- Endogenous Seborrheic dermatitis, 490
- Energy dispersive X-ray microanalysis, 45–47
- Engström, A., 17, 44–45
- Enslin method, 280, 282
- Epidermal barrier homeostasis, 155–158
- Epidermal biochemical differentiation, 300–301
- Epidermal differentiation, 2, 54, 112, 122–124, 197, 203–204, 251, 302, 344  
 in dry and aged dry skin, 120  
 of the lipid bilayer, 300
- Epidermal hyaluronan, 255
- Epidermal hyperplasia, 107, 110–113, 157, 228, 236, 322
- Epidermal lipids, 38, 68, 326, 343, 397  
 in aged dry skin, 121–122  
 and skin barrier formation, 23–28
- Epidermal proinflammatory cytokines, 3
- Epidermis, 10, 32, 38, 53, 67, 86, 343–344  
 lipids in the, 23–26, 300  
 mass and elemental distribution of, 55  
 and mechanical properties of the skin, 234  
 sensor devices in the, 113  
 structure of, 172
- Epidermolytic hyperkeratosis (EHK), 84, 87–92, 91
- Epidermolytic palmo-plantar hyperkeratosis, 90
- Epidermosides, 343–345
- Erosion assay, 476–479, 481
- Erythema, 138–139, 213–219, 303–305, 324, 422–423  
 after sodium lauryl sulfate provocation assay, 476
- Erythroderma, 88, 89, 92, 117
- Erythrodermic lamellar ichthyosis (ELI), 88
- Escobar, S.O., 139
- Eskimos, 328
- Essaven gel, 304
- Essential fatty acids (EFA)  
 in clinical dermatology, 326  
 functions of, 322–326  
 metabolism of, 321  
 in skin, 321  
 status of, in modulation of cutaneous responses, 329–330
- Essential Oils, 392, 393–394
- Estradiol, 304
- Estrogen, 123–124, 266, 524
- Ethylhexylglycerin, 517
- Ethyl/isopropyl alcohol, as antiseptic, 392
- Etiology, 88, 330, 489–492, 494

European group on efficacy measurement of cosmetics and other topical products (EEMCO), 162, 452  
 European Pharmacopoeia (EP), 97, 286, 310  
 Euxyl K400, 516  
 Evaporimetry, 476, 495  
 Evening primrose oil (EPO), 324, 327–329  
 Excipients, 516–517  
 Exfoliation, 176, 182, 216, 407  
 Experimentally induced dry skin, 107–114  
 Extracellular matrix (ECM), 246–253, 257, 265

## F

Facial sting test, 497  
 ‘Factors of aging’, 118  
 Fairhurst, E., 234  
 Farnesol, 112, 392–394, 516  
 Farnesol X receptor (FXR), 201, 204  
 Feingold, K.R., 112  
 Fick model, 17  
 Filaggrin, 63, 103, 194–198, 203–204, 228  
   distribution, in human SC, 193  
   in dry and aged dry skin, 120–121  
   expression of, 110  
   to histidine, 163  
   in horny layer, 85  
   hydrolysis control of, 177, 192–193, 229  
   to NMF, 172  
 Flaking, 179, 190, 369, 410–414, 420, 467, 509  
 Flavonoids, 261  
 Fluctuations in frictional force amplitude (FFFA), 446  
 Fluhr, J.W., 163, 189, 230, 232, 236, 238–239  
 Fluid-state PC matrix, 303–305  
 Fluid-state phosphatidylcholine, 303  
 Folic acid, 383  
 Fontell, 36 AQ:Please provide initials  
 Formalin, 254–255  
 Formulated petrolatum, 360  
 Formulated SEFA, 360–361  
 Formulations, 145–426  
 Forskolin, 155  
 Forslind, B., 15  
 Fox, C., 190, 311  
 Fragrance ingredients, 293, 515–516, 524  
 Free amino acids (FAA), 411  
   in NMF, 189  
   in stratum corneum, 95–104  
 Free long-chain bases (FLCBs), 342–344  
 Free-radical scavengers, 3  
 Freeze-drying techniques, 47  
 Freeze-substitution, 33  
 Froebe, C.L., 230–231  
 Frosch, P.J., 304, 478, 488, 494  
 Full-face test, 506  
 Full-thickness model, 504  
 Fusidic acid, 394, 398–399

## G

GABA(A) receptor, 112, 156  
 Gabard, B., 137  
 Gangliosides, 261, 342–345

Gel-state PCs, 299–300, 303, 304–306  
 Gene expression, 201, 252, 320, 329–330, 380  
   modulation of, 325  
 Gentian violet, 392, 394, 398  
 Gerritsen, M.J.P., 110  
 Ghadially, R., 121, 293  
 Glass electrode, 162  
 Gloor, M., 230, 398  
 Glycerin, 66, 215, 218, 220, 228, 233, 238–239, 419,  
   *see also* Glycerin-based moisturizing lotion  
   amplitude/mean measurements of, 437  
   as contact allergens, 517  
   and electrical impedance, 440  
   and friction coefficient, 439  
   and synthetic bar, versus moisturizing body wash, 366  
   versus neat petrolatum versus neat SEFA, 361, 365,  
   369  
 Glycerin-based moisturizing lotion, 361–366, 369–370  
 Glycerol, 89, 176, 203  
   biological and biophysical effects of, 227–240  
   compounds of, as contact allergens, *see separate entries*  
   concentration and formulations of, 238–239  
   and corneocyte surface area, 236–238  
   and desmosomal degradation, 232  
   and evaporation, 230  
   and hygroscopicity, 230  
   irritation prevention using, 232–234  
   just a moisturizer? 227–240  
   in NMF, 189, 190, 195  
   penetration enhancing effects of, 233  
   plasticizing and smoothing effect of, 234–235  
   and SC phase transition, 231  
   and sebaceous glands, 236  
   and skin hydration, 230  
   and skin moisturization, 229–230  
   and urea, in aged dry skin, 121  
 Glycerylisostearate, 517  
 Glycerylmonoisostearate monomyristate, 517  
 Glyceryl ricinoleate, 517  
 Glycine receptor, 112, 156  
 Glycolic acid, 138, 165, 217, 264  
 Glycosaminoglycans (GAG), 119, 191, 246–248,  
   250–251, 253, 256–257, 265  
 Glycosphingolipids, 341, 343–344  
 Glycyrrhizin, 261  
 Going, S.M., 137  
 Goldenberg, R.L., 497  
 G-protein coupled receptors, 155, 156  
 Gravimetric method, 460  
 Gray, G.M., 343  
 Greaves, M.W., 136  
 Greenland Eskimos, *see* Eskimos  
 ‘Ground substance’ term, 246  
 ‘Grundsubstanz’, 246  
 Grunewald, A.M., 108, 232  
 Guinea pig maximization test, 497  
 Gupta, A.K., 344

## H

Hagemann, I., 137  
 Half-face test, 506

- Hamamelis*, 304, 398  
 Hamemetum Crème, 304  
 Hand dermatitis, 150, 212, 215, 216, 221, 293, 328  
 Hansen, A.E., 319  
 'Haptic Finger', 446–447, 448  
 Harding, C., 175  
 Harding, C.R., 191  
 Hartop, P.J., 139  
 Hawkins, S.S., 497  
 Healing process, by glycerol, 233–234  
 Hemodialysis (HD), 95–104, 128  
 Hemopexin, 257  
 Henle, F., 246  
 Heparin ratiopharm, 304  
 Heparin, 253, 261, 304  
 Heuss, E., 161  
 Hexyldecanoic acid, 517  
 Highley, D.R., 432, 435, 436  
 Hills, R.J., 433, 436  
 Hirschmann, J.V., 395  
 Histamine receptor antagonist, 112  
 Holleran, W.M., 103  
 Horii, I., 97  
 Horizontal elemental distributions, 56  
 Hormone replacement therapy, 123–124  
 Horny cells, 10, 394  
 Horny layer, 3–4, 10, 14–15, 39, 88, 283, 286, 312, 507  
     biochemical differences of, 85–86  
     in sensitive skin, 493  
     structural defects in, 477  
     weakening of, 479  
 Huber, C., 137  
 Huether, M.J., 395  
 Human cathepsin G, 75  
 Human Immunodeficiency Virus (HIV) infection, 129–130  
 Human kallikrein 7, *see* stratum corneum chymotryptic enzyme (SCCE)  
 Human skin barrier, 14–15, 18  
 Human stratum corneum ceramides, structures of, 24  
 Human volunteer testing, 504–508  
 Humectants, 111, 188–191, 198–200, 228–233, 236, 358, 419  
     and excipients, emulsifiers, 516–517  
     and formulated SEFA, 360, 369  
     in glycerol, 239–240  
     and HP3, 284–285  
     and skin pH, 165  
 Hyal-1, 248, 253, 259–262  
 Hyaladherins, 248, 250, 260, 263  
     and receptors, 253–254  
 Hyaluronan, *see also individual entries below*  
     and aging, changes in, 256  
     biology of, 246–253  
     catabolism of, 248  
     deposition of, modulation in, 263–266  
     dermal hyaluronan, 255–256  
     embryogenesis of, 251  
     epidermal hyaluronan, 255  
     functions of, 249–251  
     metabolism of, 258–263  
     in moisturizing, 245  
     and skin, 254–258  
         skin pathology involving, 257  
         syntheses of, 258  
 Hyaluronan deposition, modulating, 263–266  
 Hyaluronan metabolism, 258–263  
 Hyaluronan oligomers, 252  
 Hyaluronic acid (HA), 123, 246–267  
     in NMF, 189  
     origin of the word, 247  
     in SC, 189  
     synthesis of, 191  
 Hyaluronidase inhibitors, 250, 260–261, 263–264  
 Hyaluronidases, 246–256, 259–264  
 Hydrangea, 261  
 Hydrangenol, 261  
 Hydration, 433–434  
     and dynamic friction coefficient, 435  
     by moisturizers, 150  
     in skin dryness, quantification of, 420  
     of stratum corneum, *see* Stratum Corneum:  
         hydration of  
         due to urea-formulations, 213, 215, 217  
 Hydrocortisone, 216, 218, 265, 306  
 Hydrophilic pastes, 279–286  
 Hydrophilic pathways, 12–13  
 'Hydrophilic' substances, 293, 314, *see also*  
     Hydrophilic pastes; Hydrophilic pathways  
     Keratin as, 11–12  
     lipids as, 13, 33  
     and mechanical properties of skin, 234  
 Hydrophobic pathways, 12–13  
 Hydroxymethylglutaryl-CoA (HMG-CoA) reductase, 26  
 6-Hydroxysphingosines, 23–24, 26, 175, 342  
 Hygrometer, 128, 425  
 Hygroscopicity, 137–138, 189, 190, 212–213, 229, 232, 453  
     and glycerol, 230  
 Hyaluronasome organelle, 262–263  
 Hyperkeratosis, 75, 83–92, 107, 130, 135, 139, 212–213, 216, 217, 220, 234, 329, 380  
 Hyperkeratotic conditions, and dry skin, 83–140  
 'Hyper-reactor', 488, 493–494  
 Hypoallergenicity, 491, 497
- I**  
 Ichthyosiforme syndromes, 83, 92  
 Ichthyosis, 71–74, 76, 103–104, 139, 213, 467, 492,  
     *see also individual entries*  
     Bullous ichthyosis, 90–91  
     lamellar ichthyosis, treatment of, 88–90, 217  
     rarer forms of, 87–88  
     related syndromes for, 92  
     studies of, 83–92  
     symptoms of, 194  
     as a term, 83  
     treatment of, 86–87, 198, 214, 375  
     types of, 84–85  
     urea treatment for, 220–221  
 Ichthyosis bulluosa of Siemens, 90  
 Ichthyosis circumflexa, 92  
 Ichthyosis vulgaris, 84, 85, 88, 103–104, 139, 194, 214

- Igarashi, S., 173  
 Immune function, modulation of, 325  
 Imokawa, G., 102  
 Inborn dryness, of skin, 83–92  
 Inflammation, and skin aging, 258  
 Inner stratum corneum lipids, 352  
 Inositol 1,4,5-triphosphate (IP3), 65, 324, 328  
 Instrumental variability, for skin moisturization  
 assessment, 452–453  
 Intact skin, 392–393, 396–397  
 Intercellular adhesion molecule-1 (ICAM-1), 118, 325  
 Intractable itching, 3  
 In use tests, 506  
*In Vitro* methodologies in skin irritation, 503–504  
 Ionic polymers, on skin surface, 157  
 Ionotropic receptors, 112, 155, 156  
 Irritant contact dermatitis, 57–58, 233, 238, 379, 396,  
 491, 505  
 Irritation, 409  
 acute skin irritation, 504–505  
 and corrosivity, 525  
 cumulative skin irritation, 505–506  
 factors causing, 511  
 objective irritation and nonerythematous irritation,  
 490–491  
 protection against, 232–234  
 sensory irritation, 506–507  
 of skin, assessment of, 508–511  
 SLS irritation, 478, 481  
 sources of, 502–504  
 strategy for testing, 511–512  
 subjective irritation, 489–490  
 Ishida, K., 104  
 Isoflavonoids, 123  
 Isopalmityl diglyceryl sebacate, 517  
 Issachar, N., 490  
 Itch-scratch cycle, 3
- J**
- Jacobi, S., 3  
 Jacobsen, T., 191 AQ:Kindly spell check the name. Its  
 Jacobson in references  
 Johansson, T.B., 47
- K**
- Kato, A., 128  
 Katsarar, A., 515  
 Keratinocytes, 72–75, 92, 203, 231, 235–236, 263–266,  
 303  
 as adhesion substrate, 253–254  
 and desmosomes, 466  
 differentiation of, 64–67, 71, 90, 229, 342, 345  
 effects on, 57–58  
 in fatty acid metabolism, 322  
 and free amino acids, 103  
 gangliosides on, 345–346  
 HA synthesized by, 191, 251  
 and LA derivatives, 329  
 neurotransmitter receptors on, 155–156  
 neurotransmitters in, 112  
 and skin barrier, 12–13  
 Keratolytic effect, 136–138, 214, 228  
 by desmosome degradation, 231–232  
 Keratolytical agents, 135, 136–139, 140  
 Keratoplastic agent/effect, 136, 211  
 Keratosis follicularis, 85, 92  
 Kermici, M., 190  
 3-Ketodihydrospingosine, 26  
 Kitamura, K., 112  
 Kligman, A., 311  
 Kligman, A.M., 291, 304, 419, 488, 494, 507  
 AQ:Kindly check whether both can be combined  
 Koh, K.J., 393  
 Korting, H.C., 166  
 Kostarelos, K., 138  
 Koudine, A.A., 432–433, 435  
 Koyama, J., 97  
 Krein, P.M., 190  
 Kumasaka, K., 98  
 Kurtz, K., 56
- L**
- Lactate effect, 263  
 Lactic acid, 198–200, 214–217, 263–264  
 isomers of, on skin function, 187  
 on SC lipid level, 200  
 urea decomposition by, 212  
 Lactic acid sting test, 476, 494  
 Lactic acid test, 497  
 Laden, K., 190  
 Lamellar barrier, 17, 136  
 ‘Lamellar bodies’, 4, 17, 27, 39, 54, 74–75, 103, 121,  
 171, 173, 255, 322  
 ‘Lamellar disks’, 39  
 Lamellar granules, 16, 26–27, 172, 322  
 Lamellar ichthyosis, 72–73, 83, 87, 92, 217  
 treatment of, 88–90  
 Landmann unit, 351–352, 354–370  
 Lanolins, 309–314, 493  
 composition of, 310  
 cosmetic allergy due to, 491  
 derivatives of, 314  
 as an emulsifier, 314  
 as a moisturizer, 311–313  
 purification of, 309–310  
 versus sebum and SC lipids, 311  
 Laser Doppler imaging, 138, 476, 478–481, 490, 495,  
 510  
 Lecithin, 300, 305  
 Lee, M.Y., 181  
 Leeson, D., 425  
 LEKTI, 77  
 Leucocyte chemotaxis, 326  
 Leukotrienes, 322–328, 495  
 Leveque, J.L., 110, 235  
 Liarozole, 90  
 Lidocain, 306  
 Lindberg, M., 290  
 Lindström, B., 45  
 Linoleic acid, 25, 122, 139, 319  
 metabolic conversion of, 321  
 structure of, 320  
 Linoleic acid, conjugated, 329

Lipid classification, 33  
 Lipid gradients, 15  
 Lipid lamellae, 24–25, 173, 175, 189, 191, 228–231, 322, 369  
   normal structure of, 352  
 Lipid organization, 33–37, 39–40, 175  
 Lipid phase behavior, 33–37, 199, 232  
 Lipid self-assembly, 33–34, 36  
 Lipid structures, 10, 12, 14, 228–229, 257, 352–356, 366  
   and acetone treatment, 108  
   of the outer SC, 354, 360, 366, 369–370  
   in the permeability barrier, 31–40  
 Lipids, 409, *see also individual entries*  
   damage of, 416–418  
   short-term effects on, 412  
   surfactants effect on, 411–412  
 Lipophilic pastes, 279, 281–286  
 Liposomes, 4, 300–303, 376, 411  
 Liquid Crystalline Lipids, 36–37, 39  
 Liver X receptor (LXR), 201, 204  
 L-M-X 5 brand, 306  
 Lodén, M., 290, 435, 480  
 Lotions, 292–294, 314, 406–408, 418–420, 425  
   betamethasone lotions, 138  
   ceramides and lactic acid based, 199  
   versus creams and ointments, 139, 152, 165  
   glycerol based, 202, 203, 234, 361–370  
   glycolic acid based, 138  
   lactic acid containing, 478–479  
   Lanolin based, 312  
   PCA containing, 198  
   urea based, 87, 198, 214, 216, 281  
   vaseline based, 179–180  
   in xerotic legs treatment, 217  
 Low density lipoprotein (LDL), 26  
 Low molecular weight inhibitors, 261  
 Lowry assay, 460  
 Low-temperature embedding, 33  
 Lubricant oils, 436  
 Lubricants, 249, 294, 311, 433–440  
 Lundström, A., 73  
 Luzatti, 36 AQ:Please provide initials  
 Lysophosphatidic acid (LPA), 345–346  
 Lysophosphatidylcholine, 302

## M

Macromolecular inhibitors, 260–261  
 Maibach, H.I., 488–489  
 Maleated soybean oil, 353, 517  
 Malignancy, 83, 117–118, 211, 247, 251–253, 256, 263  
 Malpighian epidermis, 55  
 Manuskiatti, W., 438  
 Marchionini, A., 161  
 Mass and elemental distributions, 55  
 Masunaga, T., 181  
 Medium chain triglycerides (MCT), 239  
 Melatonin receptors, 155  
 Membrane fluidity, 320, 324  
 Menon, G.K., 103  
 Menorest patch brand, 304  
 Meratinine receptor, 156  
 Metabonomics, 504, 512  
 Metal allergy, 57  
 Methoxy PEG-17 dodecylglycol polymer, 517, 517  
 Methylcellulose, 281, 282  
 Meyer, K., 247  
 Michaels, A.S., 15  
 Microradiography, quantitative, 44–45, 46  
 Middleton, J.D., 190, 198  
 Mild cleansing technologies, 414–419  
 Million women study, 123  
 Mineral oil, treatment with, 358  
 Minimal blistering time (MBT), 493  
 Minolta chromameter, 481  
 Miyamoto, T., 129–130  
 Moisturization efficacy tests, 203  
 Moisturization measures, 422–425  
 Moisturizers as medicine, 149–150  
 Moisturizing body wash, 367–368, 369, 419  
 Moisturizing cleansers, 370, 405–426  
 Molin, L., 56  
 Moncorps, C., 136  
 ‘Mood adjective check list’ (MACL), 448  
 ‘Mucopolysaccharides’, 247  
 Muizzuddin, N., 492  
 Mupirocin, 393–395, 397–398  
 Murata, Y., 103  
 Murine skin, 54, 191, 384  
 Muscarinic acetylcholine receptor (mAChR), 130  
 Mutagenicity/Genotoxicity, 525, 526–527

## N

Nacht, S. 435–436, 436  
 Nakagawya, N., 200 AQ:Kindly spell check the name.Its Nakagawa in reference  
 Natural ingredients, 515, 518  
 Natural moisturizing factor (NMF), 63, 87, 95–96, 172, 177, 187–204, 409–411, 415  
   chemical composition of, 189  
   concentration profiles of, 196  
   and dry skin conditions, 194–198  
   in horny layer, 85  
   origin of, 191–192  
   and pH gradient, 163  
   short-term effects on, 412  
   and skin moisturization, 229  
   soap washing declining, 228  
   in the stratum corneum, role of, 189–191  
   topically applied NMF, effect of, 198–201  
 Naylor, P.F.D., 431–432, 435  
 Neat petrolatum, 293, 358, 359–365, 369  
 Neat SEFA, 358, 360, 369  
   versus petrolatum and glycerin based moisturizing lotion, 361–365  
 Nerve growth factor (NGF), 130  
 Netherton’s syndrome (NS), 77, 92  
 Neurotransmitter receptor, 64, 112–113, 130, 155–156  
 Nguyen, V.T., 191  
 Niacin, *see* Nicotinic acid  
 Niacinamide, 203  
 Nicotinamide adenine dinucleotide phosphate (NADPH), 26



Nicotinate test, 476  
 Nicotinic acid, 383  
 Nifedipine, 66–67  
 Niosomes, 4  
 NMDA receptor, 112, 156  
 Nojima, H., 129  
 Nonbullous congenital ichthyosiform erythroderma (NBCIE), 89  
 Nonbullous ichthyosiform congenital erythroderma (CIE), 88  
 Nonenzymatic degradation, 261  
 Nonerythematous irritation, 490–491  
 Nonspecific cation channels (NSCC), 66  
 ‘Nonstingers’, 489, 507  
 Nook, T.H., 137  
 Norlén, L., 11, 13, 15, 17  
 Normal skin, 56–58, 175  
   electron micrographs of, 173  
   pH gradients over, 87, 164  
   proton probe analysis of, 53  
   urea effects on, 218, 219  
   x-ray spectrum of, 49  
 Normal volar forearm skin, 480–482  
 ‘Nota N’, 289  
 Nuclear hormone receptor activator, 112

## O

Objective irritation, 490, 490–491  
 Oblong, J.E., 203  
 4 h Occluded patch test, 504–505  
 Occlusive surfactant dressing, 110–111  
 6-Octadecyldimethyl ammoniohexanoate, 73  
 Octenidine, 392, 393, 398  
 Okamoto, T., 230  
 Optimase, 176–181  
 Optothermal transient radiometry (OTTER), 291  
 Ornithine, 96, 98, 100, 102, 103  
 Ornithine decarboxylase (ODC), 64, 344  
 Outer stratum corneum lipids, 352–353  
 Overall hand condition, grading scale for, 182  
 Overgaard Olsen, L., 234–235  
 Oxidative stress, 257–258, 329, 375–376, 379, 384  
   modulation of, 326–327

## P

P2X receptor, 112, 156  
 Paccini receptors, 444  
 Paller, A.S., 343, 345  
 Panthenol, 384, 518  
 Pantothenic acid, 382, 384  
 ‘Paraben paradox’, 493  
 Parabens, 492, 516  
 Parakeratotic index, of stratum corneum, 97  
 Parapsoriasis, 117  
 Parra, J.L., 162–163  
 Particle probes, and skin physiology, 43–59  
 Patch testing, 293, 490, 490–496, 505, 515–518  
 Pathological skin, 44, 52  
   electron and proton probe data from, 56–58  
 Paye, M., 162–163

Pazaglia, M., 516 AQ:Kindly spell check the name. Its Pazzaglia in reference  
 Pederson, L.K., 235 AQ:Kindly spell check the name. Its Pedersen in reference  
 Penetration enhancers, 16, 17, 136–137, 140, 217, 233, 299  
 Pentaerythritol rosinate, 517  
 Pentylene glycol, 517, 517  
 Peroxisome proliferator receptor (PPAR), 203–204  
   activation of, by farnesol, 112  
   EFAs affecting, 325  
 Petrolatum, 289–294, 359–370, 437, 439–440, 475, 477  
   in cosmetic compositions, skin moisturization by, 292  
   in dermatological applications, 292–294  
   formulated, 360  
   in Lanolin, 310–314  
   in paper and related products, 294  
   skin moisturization by, 290–291  
 Petroleum jelly, 198, 201, 289–294, 419  
 Pevaryl gel, 304  
 pH, *see* Skin pH  
 Phenylmethylsulfonyl fluoride (PMSF), 73  
 pH-gradient, 10, 164–166  
   formation of, 163  
 Phorbol ester (PMA), 258, 344  
 Phosphatidylcholines (PCs), 299–307, 321  
   as an active drug substance, 302–303  
   fluid-state PC matrix, effects of, 303–304  
   fluid-state PCs, topical application of, 303  
   gel-state PCs, topical application of, 304–306  
   gel-state PCs, uptake and tolerance, 304  
   topical applications of, 302  
 Phospholipids, 203, 395  
   acidic phospholipids autacoid, 345–346  
   biological efficacy of, 301–302  
   gel-state PC matrix loaded with, 306  
   introduction to, 300  
   and metabolites and skin hydration, 299–307  
   to metabolites, epidermal biochemical differentiation, 300–301  
 Photo-aged skin, 258, 265, 459  
   dryness in, 117–124  
   hyaluronan involving, 257  
 Photoallergic contact dermatitis, 490, 492, 515, 518  
 Photocarcinogenesis, 327, 383  
 Photodermatology, 326–327  
 Photo-induced toxicity, 525–526  
 Photopatch test, 490, 492, 494, 496, 496–497  
 Photosensitivity reactions, 492  
 Phytosphingosine, 23–26, 174–175, 342  
 Pierard, G.E., 2  
 Piezo-electric detection, 446–447  
 Pilgram, G.S.K., 17  
 PIXE analysis, 49, 55–57  
   advantages and disadvantages of, 50  
   in elemental mapping, 51–54  
   limitations of, 51  
   of epidermis, mass and elemental distribution of, 55  
   of tissue activity, 52–54  
 Pixel maps, *see* PIXE analysis  
 Placebo arm, 149–150  
 Plakoglobin, 171, 174  
 Plakophilins, 171  
 ‘Plastic crystals’, 34

Polyhexanide, 392  
 Polymyxins, 395, 398  
 Polyquaternium-7, 517  
 Polyunsaturated fatty acids (PUFAs), 122, 139, 320–330  
 Poly-vinylidene-fluoride (PVDF), 447  
 Potentiometric methods, 162  
 Potten, C.S., 10  
 Povidone iodine, 306, 392, 393, 397  
 Prall, J.K., 292, 435, 436, 445  
 Presland, R.B., 192  
 Profilaggrin, 84–85, 191–198  
     schematic representation of, 193  
     synthesis and degradation of, 192  
     synthesis of, enhancing, 201–204  
 Programmed cell death, *see* Apoptosis  
 Proksch, E., 137  
 Proliferative unit, 10, 10  
 Propylene glycol, 87–89, 92, 217, 489, 516–517  
 Protease exposure time, on visual scaling, 180  
 Protease inhibitor, 73, 75–77, 92, 111–113, 129, 259  
 Proteases  
     topically applied proteases, 176–182  
     use of, and dry skin, 171–184  
 Protein determination, 460  
 Protein kinase C (PKC), 65, 86, 258, 322, 324, 344–345  
 Proteinase-activating receptor 2 (PAR2), 130  
 Proteoglycans, 246–250, 253, 257, 454  
 Proteolysis, 77, 172, 406  
     and filaggrin, 120, 192–194  
     and stratum corneum cell dissociation, 73  
 Proton probe analysis, 47–48, 53, 54, 59  
 Proust, W.A., 211 AQ:Kindly spell check. Its Prout,  
     W.A. in references  
 ‘Pruritus hiemalis’ *see* Winter xerosis  
 Psoriasis, 56–58, 63–66, 71–72, 108, 110–113, 117  
     and co-fatty acids, 139  
     EFA in, 328–329  
     emollients in, 139–140  
     moisturizer and kerolytical agents in, 136  
     moisturizer effect in, 135–140  
     psoriasis vulgaris, *see separate entry*  
     urea-containing moisturizers on, 213, 220  
 Psoriasis Vulgaris, 213, 213, 343, 345, 382, 384  
 Psoriatic lesions, 135–138, 213, 250  
 Psoriatic normal-looking skin, 57  
 Punch biopsy, 73, 504  
 Puppels, G., 195  
 Pyridoxine, *see* Vitamin B<sub>6</sub>  
 Pyrrolidone carboxylic acid (PCA), 85–86, 163, 165,  
     189, 189–192, 195, 198

## Q

Quantitative microradiography, 44–45  
 Querleux, B., 448

## R

Radiolabel pulse chase, 192  
 Randomized controlled trials (RCTs), 149–151, 212  
 ‘Rash’ term, 2

Rawlings, A.V., 3–4, 172, 174, 232  
 Reactive oxygen species (ROS), 118, 257, 323, 326,  
     376, 381  
 Refsum disease, 92  
 Repeat insult patch test, 293, 497  
 Repeated dose toxicity, 525, 526  
 Repetitive irritation test, 476  
 Repithel brand, 306  
 Reproductive toxicity, 525, 526  
 Retinoic acid receptor (RAR), 201, 218, 256, 264–265,  
     380–381  
 Retinoid X receptor (RXR), 201, 203, 380, 381  
 Retinoids, *see* Vitamin A derivatives  
 Retinol, *see* Vitamin A  
 RHAMM, 250, 254, 263  
 Riboflavin, *see* Vitamin B<sub>2</sub>  
 Ricinoleic acid, 517  
 Rieger, M.M., 162  
 Rietschel, R.L., 497  
 Rigal, J., 235  
 Rinse-off products, 166, 516  
 Rippke, F., 163  
 Roberts, D.L., 136  
 Roberts, M.E., 198  
 Röntgen, Konrad, 44

## S

*S. aureus*, 3, 164, 176, 344, 391, 393–400  
 Saccharide isomerates, 200  
 Safety evaluation, of products, 527–528  
 Safrin, L., 497  
 Sakai, S., 190  
 Salicylic acid, 138–140, 462  
     in psoriasis, 136–137  
 Sandwich model, 17  
 Saran wrap, 2  
 Sasaki, Y., 138  
 Sato, J., 113  
 Scaliness, and SACD, 465–469  
 Scaliness, of the skin, 83–92  
 Scaling, dryness and flaking, 413–414  
 Scanning electron microscope (SEM), 45  
 Scanning transmission electron microscope (STEM), 45  
 Schade, H., 161  
 Scheele (Swedish chemist), 228  
 Schreiner, V., 175  
 Scott, I.R., 121, 191  
 Sebaceous glands, 75, 122–123, 163, 311, 379–380, 461  
     and glycerol, 236  
 Sebaceous lipids, 27, 122, 236  
 Sebumeter, 466, 495  
 Seidenari, S., 495  
 ‘Senile pruritus’, 117, 128  
 Senile xerosis, 102–103, 128, 195, 228  
 Sensitive skin, 487–498  
     and skin bioengineering, 495–496  
     definition of, 487–488  
     diagnostic tests for, 493–494  
     etiology of, 490  
     management of, 496  
 Sensitizing substances, 515–519  
     identification of, 518–519

- Sensor devices, 113
- Sensory irritation, 489, 491, 496, 506–507
- Serotonin receptors, 155, 156
- Sézary syndrome, 117
- Shemer, A., 138
- Silico models, 503, 551
- Silver coated textiles, 399
- SIMCA, analysis using, 58
- Simulated use tests, 505–506
- Single gel model, 17
- Sivamani, R.K., 433, 435, 436–440
- Sjögren's syndrome, 118
- Sjögren–Larsson syndrome, 92, 139
- Skin aging, 118–119, 122–124, 454, 518
- Skin barrier function, 77, 112, 120, 130, 161, 163, 165–167, 320, 378
- antimicrobials on, 396–399
  - changes in, 222
  - effects of urea on, 217–221
- Skin barrier homeostasis, 63–68, 157
- Skin Bioengineering, 492, 495–497
- Skin cancer, 326–327, 329–330, 375–376, 381
- Skin care products, 3, 198, 289, 292–294, 384, 448, 492, 496, 515–518
- Skin complexity, and instrumental approach, 443–449
- Skin condition assessment, 509
- Skin diseases, with desquamation disturbances, 72–73
- Skin disorders
- and pH, 164
  - urea-treatment on, 220
- Skin friction coefficient values, 434–440
- Skin hydration, *see* Hydration
- 'Skin-identical lipids', 4
- Skin microflora, 164, 166
- Skin permeability barrier recovery, 156
- Skin pH, *see also* pH-gradient
- application of the term, 161–162
  - function and importance of, 164
  - inside skin pH, 164
  - of cosmetic products, 165
  - of outside and inside skin, 161–167
  - of the surface, 97, 99, 100
  - and moisturizers and cosmetic products, 165–166
  - outside skin pH, 163
  - and rinse-off products, 166
  - and skin disorders, 164
  - stay-on products on, impact of, 165–166
- Skin physiology, and particle probes, 43–59
- Skin surface water loss (SSWL), 285–286, 411–412, 420
- SLS irritation, 478–482
- Smith, W., 200
- Soap-induced dry skin, 174, 176, 181
- Sodium cocoyl isethionate (SCI), 410, 416, 418–419
- Sodium dihydroxyethyl phosphate, 517
- Sodium dodecyl sulfate (SDS), 73, 108, 110, 416–418, 505, 511
- Sodium hydroxide erosion assay, 476, 477
- Sodium lauryl ether sulfate (SLES), 305, 415–418, 416–418
- Sodium laurylsulfate-induced dermatitis, 123
- Spectroscopic methods, for SC amount removed by tape stripping, 460–461
- Sphingolipids, biological influence on skin, 341–346
- Sphingosylphosphorylcholine (SPC), 103, 345–346, 346
- Spitzer, R., 190
- 'Spreading factor', 246
- Squamometry revisited, 465–469
- Stalder, J.F., 398
- Staphylococcal scalded skin syndrome, 176
- Steel, I., 311, 314
- Stern, E.C., 198
- 'Stingers', 489–490, 494, 507
- Stratum corneum (SC), 66–68, 95–104, 107–113, 171–182, 187–200, *see also individual entries*
- barrier properties of, testing methods, 475–483
  - cell dissociation of, 73
  - ceramide in the, 98, 102, 103
  - and epidermal differentiation process, 300
  - free amino acid in, 97, 99–102
  - and glycerol, phase transition of, 231
  - hydration of, 406
  - inner stratum corneum lipids, 352
  - and Lanolin, 311
  - lipid gradients within, 15
  - lipid lamellae in, 25
  - lipid organization of, 39–40
  - and lipid structure, 351–370
  - and nervous system, 129–130
  - NMF in, 189–191
  - outer stratum corneum lipids, 352–355
  - parakeratotic cells in, 97, 100–101
  - phase transition of, prevention, 231
  - SC tape stripping, 457
  - stratum corneum corneodesmosomes, 171–174
  - structure of, 15–17, 24–25
  - surfactants on, 408–414
  - by tape stripping, 457
  - water content in, 97, 98, 98–99
- Stratum corneum chymotryptic (SCCE), 75–77, 130, 172–176, 232
- Stratum corneum tryptic enzyme (SCTE), 12, 76, 172, 174, 232
- Stratum granulosum (SG), 17, 27, 32, 38–39, 55–57, 66–68, 74–77, 84–86, 130, 163–164, 172, 255, 302, 311
- Stripping with adhesive-coated discs (SACD), 466, 469
- and scalines, 466–468
- Suberythematous irritation, 490, 491
- Subjective irritation, 489–490, 494, 497
- Sucrose esters, of fatty acids, 360
- Sunscreen products, 3, 492, 516–518
- 'Sunshine vitamin', *see* Vitamin D
- 'Suntan chic', era, 265
- Supra-moisturizers, 3
- Surfactant-based cleansers, 355–356
- Surfactant lipid damage, 416–418
- Surfactant protein damage, 415–416
- Surfactants
- cleansers based on, effect of, 355–356
  - cumulative effects of, 412–414
  - immediate effects of, 410–412
  - minimizing, 415–418
  - occlusive surfactant dressing, 110–111
  - on SC, effect of, 408–414
- Surpass brand, 306
- Suzuki, Y., 73

Swartzendruber, D.C., 352  
 Sweating, and skin moisturization, 454  
 Systemic antibiotic therapy, 399  
 Systemic antibiotics, 395–397, 399  
 Systemic sclerosis (SSc), 118

## T

Takahashi, M., 120  
 Takamori, K., 130  
 Tanaka, M., 110  
 Tanghetti, E.A., 140  
 Tape strip protocol, 353–354  
 Tape stripping technique, 458–461  
   in dermatopharmacokinetic studies, 461–462  
   dry, scaly skin induced by, 107  
   dry skin and moisturizers, studied using, 457–462  
   parakeratotic cells detected using, 100  
   procedure for, 458–459  
   for SC cohesion, 462  
   SC estimation by, 459–460  
   SC lipids using, 175  
   skin surface condition using, 108  
 Tazarotene, 91, 140  
 Tea Tree Oil (TTO), 392, 393  
 Tezuka, T., 120, 195  
 Thiamin, *see* Vitamin B<sub>1</sub>  
 Tissue samples, cryo-methods for elemental analysis of, 45  
 Tissue scattering, reduction of, 235, 240  
 Tocopherol, *see* Vitamin E  
 Toole, Bryan, 251, 253  
 Topical Antibiotic Monotherapy, 398  
 Topical antibiotics, 394–395  
 Topical tretinoin, 91, 381  
 Tosti, A., 516  
 Toxicokinetic studies, 525, 526  
 Toxicological testing, 502, 528  
 Trace element analysis, 50, 54–56  
 Transepidermal water loss (TEWL), 10, 67–68, 97, 128, 283, 302, 322, 362, 476–477  
   in aged and aged dry skin, 119, 453  
   and glycerol treatment, 230  
   and petrolatum, 290  
   in sensitive skin, 495  
   and skin barrier function, 476  
 Transfersomes, 4  
 Triamcinolone acetonide, 218  
 Triclosan, 392, 393, 396–397  
 Triethanolamine (TEA), 165  
 Triglycerides, 15, 26, 122, 239, 309, 311, 419, 517  
 Tumor suppressor gene (TSG), 253

## U

Ugel, A.R., 195  
 Urea  
   in atopic dermatitis treatment, 215  
   dry hands treatment with, 216, 217  
   and glycerol, in aged dry skin, 121  
   in ichthyosis treatment, 214

  as NMF, 189–191, 198  
   in psoriasis, 137–138  
   in psoriasis vulgaris treatment, 213  
   on the skin barrier function, 217–220  
   studies on, 213–217  
   use of, clinical evidence for, 211–222  
 Urea-containing moisturizers, clinical studies on, 213–217  
 Uremic itch, and dry skin, 128  
 Urocanic acid (UCA), 85–86, 103, 163–164, 189, 189

## V

Van Overloop, L., 175  
 Van Scott, E., 198  
 Vargas, G., 235  
 Verapamil, 66, 67  
 Verkman, A.S., 189  
 Verrucous hyperkeratosis, 88, 91  
 VIC method, 236  
 Virucidal effect, 228, 239–240  
 Visual assessment, of skin irritation, 508  
 Visual scaling, 178, 179–180  
 Vitamin A, 84, 181, 264–265, 375, 380–381  
   chemical structure of, 380  
   for dry and rough skin, 123  
 Vitamin A derivatives, 84, 90, 92, 123, 264–265, 380–381, 384  
 Vitamin B<sub>1</sub>, 382  
 Vitamin B<sub>2</sub>, 382  
 Vitamin B<sub>6</sub>, 383  
 Vitamin B<sub>12</sub>, 383  
 Vitamin B-complex, 382–384  
 Vitamin C, 26, 261, 264, 376–378, 381, 384, 518  
 Vitamin D, 87, 264–265, 381–382  
 Vitamin E, 257, 265, 326, 376–381, 384  
 Vitamin H, 384  
 Vitamin K, 375, 382–384  
 Vitamins, and skin, 375–385  
 Vitreous skin sections, 37–38  
 Vivelle patch brand, 304  
 Volar forearm, 215, 437–440, 480–482, 506  
 Voltage-sensitive Ca<sup>2+</sup> channels (VSCC), 66  
 Voorhees, J.J., 191

## W

Walsh, A., 74, 76  
 Warner, R.R., 191  
 Warren, R., 119  
 Water homeostasis, 9, 39  
 Watkinson, A., 173, 203  
 Wellner, K., 121  
 Werner's syndrome (WS), 118, 256  
 Wester, P.O., 56  
 Wet wrap dressing, 397, 400  
 Wharton's jelly, 247, 249  
 'White Petrolatum', 281, 283, 290, 294  
 Wilhelm, K.P., 110, 119  
 Wilkinson, J.D., 394

Winter-induced dry skin, 174–176  
Winter xerosis, 1, 3, 171, 198, 228, 240, 311, 363, 467,  
476  
Witman, P.M., 137, 139  
Wöhler (Scientist), 211  
Wolf, R., 419  
Wolfram, L.J., 433, 443, 446

**X**

Xeroderma, *see* Dry skin  
Xerosis assessment, 466  
Xerotic leg skin, 478–480  
X-linked ichthyosis (RXI), 72, 76–77, 85, 85–88, 214,  
228  
X-linked recessive ichthyosis (XRI), 84–87

XLRS Squamometry, 465–469  
X-ray microanalysis (XRMA), 47–52, 55–58

**Y**

Yamamoto, A., 102  
Yang, L., 108  
Yardley, H.J., 343  
Young, A.W., 128  
Yu, R., 198

**Z**

Zettersten, E.M., 123  
Zinc, 55  
Zinc oxide, 137, 165, 279, 281, 282

