

Index

- 16-BAC, 47, 49, 416
- 2-mercaptoethanol, 41, 115, 118, 121
- a**
 - accessories, 189
 - Acid violet 17 staining, 134, 224, 240, 261, 337
 - IPG strips, 365
 - acidic electrophoresis, 147
 - acrylamide, 14
 - derivatives, 73, 104
 - monomers, 14, 77
 - acrylic acid, 16
 - additives, 90, 269
 - affinity electrophoresis, 27
 - agarpectin, 13, 67
 - agarose, 13, 65, 206
 - electrophoresis, 205
 - embedding, 105
 - gel electrophoresis, 13, 25, 29, 115, 132, 181, 206, 244, 313, 427
 - gels DNA, 21, 23, 379
 - IEF, 243, 402
 - sealing solution, 353
 - aggregates, 394
 - aggregation, 37
 - albumin, 42, 125
 - alkaline buffer, 114
 - alkylation, 41, 116, 121, 268, 394, 415
 - alternative buffer systems, 39
 - amidosulphobetain, 120
 - amphoteric buffers, 72, 229, 235
 - amphoteric molecule, 4, 63
 - amplifying enzyme detection, 176
 - antibodies, 26, 95, 124
 - antibody
 - solution, 212
 - titer, 215
 - application
 - masks, 259, 335
 - strips, 67, 68, 248, 335, 401
 - automated sequencing, 33
 - autoradiography, 32, 149
 - b**
 - back-folding, 394
 - background
 - correction, 156
 - fluorescence, 104
 - subtraction, 156
 - basic IPG gradients, 88
 - basic pH gradients, 89
 - BCA protein assay, 111
 - Bind-silane, 16, 102, 309, 425
 - treatment, 308
 - Biuret reaction, 111
 - blocking, 175
 - blotting, 165, 284
 - membranes, 171, 311
 - blue native electrophoresis, 47, 147
 - blue native PAGE, 112, 182, 303
 - blue toning, 282, 374
 - bottom-up proteomics, 107
 - Bradford assay, 111
 - bromophenol blue, 98, 121, 418, 431
 - buffer, 4
 - concentrates, 5
 - gel strips, 5
 - pH, 213
 - reservoirs, 2, 82, 229
 - wicks, 5
 - c**
 - capillary, 61
 - blotting, 165
 - electrophoresis, 9, 65, 141
 - technique, 34

- car paints, 197
 carbohydrates, 27, 138
 carbon dioxide, 68, 91, 359, 398, 409, 420
 carrier ampholytes, 64, 69, 85, 121, 143, 217,
 257, 269, 346, 396
 catalysts, 14, 16, 229, 275
 cathodic drift, 73, 403
 cationic
 – detergent, 47
 – dyes, 198, 230
 – electrophoresis, 47, 230
 CCD cameras, 138, 153, 189
 cell organelles, 126
 cell surface proteins, 148
 cellulose acetate membrane electrophoresis,
 12
 chemicals, quality, 102, 196
 chemiluminescence, 177
 chromatography, 77
 chromosomes, 31
 cleanup, 343
 – protein, 117
 colloidal Coomassie staining, 133, 151, 224,
 240, 260, 280, 336, 371
 colloidal silver staining, 134, 215, 225, 241,
 250, 261
 comparative fluorescence gel electrophoresis,
 148
 complexes, 123
 – protein, 14, 112, 303
 conductive heating, 120
 conductivity, 19, 73, 75, 87, 95, 97, 229, 336
 consumables, 190, 193
 contact printing, 139
 contaminants, 123
 contamination, keratin, 102
 cooling, 397
 – contact fluid, 24, 367, 407
 – plate, 24, 311
 Coomassie Brilliant Blue, 47, 111, 133, 303
 cross-linking factor, 14, 48, 393
 cross-linking reagent, 14, 15
 cruising step, 96
 cryo-isolectric focusing, 68, 265
 cryoproteins, 68
 crystallization, urea, 72, 90
 CTAB, 47, 416
 cup-loading, 92, 121, 356
 current, electric, 17, 57, 95
 CyDyes, 347, 348, 425
 – labeling, 123
 cysteine labeling, 144, 146, 147
 cysteines content, 146, 351
- d**
 Dalton, 28
 denaturation, DNA, 32, 386
 denatured, 4, 141, 269, 346
 denaturing
 – conditions, 32, 85
 – IEF, 71
 densitograms, 155
 densitometry, 152
 desalt, 205, 345, 397, 415
 desktop scanners, 152
 detection, 131
 detergent
 – anionic, 40
 – cationic, 47, 49
 – nonionic, 72, 121
 – zwitterionic, 72, 120
 dextran gel, 13, 77
 diazobenzyloxymethyl, 172
 diazophenylthioether, 172
 difference gel electrophoresis, 108, 143,
 346
 diffusion, 3, 12, 24, 223, 405
 – blotting, 165
 – coefficient, 65
 – IEF, 400
 DIGE fluorescent labeling, 424
 DIGE labeling, 347
 Digi-West blotting, 178
 digoxigenin, 138, 176
 dimethylformamide, 348
 disc electrophoresis *see* discontinuous
 electrophoresis
 discontinuous buffer systems, 29, 57, 312,
 380
 discontinuous electrophoresis, 37, 43, 286
 disruption, 119
 dithiothreitol, 98, 115, 268
 DMF *see* dimethylformamide
 DNA
 – electrophoresis, 431
 – fragments, 379
 – restriction fragment-analysis, 29
 – sequence, 379
 – sequencing, 32
 – typing, 34
 – vertical electrophoresis, 307
 double blotting, 180
 dynamic range, 138, 155
- e**
 electric field, 18, 70, 85, 104
 electrical energy, 18
 electro-elution, 48, 158, 181

- electrode
 – buffers, 5
 – pads, 95
 – solutions, 70, 246, 259, 264
 – strips, 403, 408
 – wicks, 21, 202, 211, 239, 278, 369, 388
 electroendosmosis, 5, 13, 16, 67, 102, 366, 403, 413, 421
 electroendosmotic effects, 98, 105
 electrolysis gas, 169, 426
 electroosmotic flow, 29, 366, 397
 electrophoretic blotting, 168
 electrophoretic desalting, 123
 electrophoretic mobility, 1
 – relative, 2
 emission, 137, 143
 emission filter, 269, 352
 end point method, 64
 enrichment, protein, 118
 enzyme
 – activities, 120
 – blotting, 176
 – inhibitors, 140
 epicocconone, 137, 175
 equalizer, 125
 equilibration, 98, 306, 314, 353, 366, 422
 equipment, 23, 94, 101, 191
 equivalence point, 26
 ethidium bromide, 30, 391
 excitation, 137, 143, 269, 352
 experimental design, 147, 347
 exponential gradients, 40
- f**
 far-western blotting, 168
 Ferguson plot, 28
 field strength, 57, 65, 73
 film support, 16, 286, 379
 film-backed gels, 171
 film-supported flatbed gels, 16, 66
 film-supported gel strips, 89, 256
 fixation, 131
 flatbed electrophoresis systems, 24
 fluorescence, 108
 – CCD camera system, 269, 352
 – detection, 136, 423
 – labeling, staining, 101, 269, 283, 346, 374
 – scanners, 138, 153, 269, 352
 fluorescent
 – dyes, 30, 269, 346
 – markers, 159
 – staining, 136, 175, 283, 374
 – tags, 140
 – western blotting, 177
- fluorophores, 136
 focusing effect, 3, 64
 food colors, 197
 fractions
 – peptide, 80
 – protein, 80
 free flow electrophoresis, 7, 65, 127
 free flow isoelectric focusing, 78
- g**
 gel
 – cassette, 2, 199, 292
 – casters, 103, 293, 296, 358
 – casting, 102
 – electrophoresis, 13
 – kit, 188
 – replicates, 147, 347
 – sizes, 86
 – strengthener, 16, 422
 GeLC-MS, 50
 gel-to-gel variations, 146, 147
 glycerol, 66, 201
 glycoprofiling, 11
 glycoproteins, 46, 101, 138, 416
 good manufacturing practice, 86
 gradient drift, 73, 321, 398
 gradient gels, 101, 273, 293, 304, 411
 – electrophoresis, 39
 – immobilized pH gradient, 328, 354
 gradient maker, 40, 46, 75, 273
 granulated gel, 13, 77, 126
 grid cutter, 50
 ground leakage, 397, 413
- h**
 heat exchange, 20
 heat stabilization, 120
 hexapeptide ligand libraries, 125
 high molecular, 274
 high resolution 2D electrophoresis, 50
 high resolution 2D PAGE, 118
 high-molecular weight proteins, 91
 homogeneous gel, 101
 horizontal
 – gel, 102, 267
 – polyacrylamide gels, 23, 379
 – SDS PAGE, 410
 – setups, 99
 – systems, 21, 65
 hot agarose solution, 208, 245, 367
 hot Coomassie staining, 279
 hybridization, 30, 175

- hydrophobic
– binding, 126
– proteins, 112, 120
hydroxyethyl disulphide, 121
- i*
IEF gels, 132
image analysis, 154
imaging systems, 151, 152
immobiline, 46, 73, 330, 354, 410
– recipes, 323, 354
immobilized pH gradients, 73, 85, 89, 321, 405
immune electrophoresis, 149
immunoblotting, 176
immunodetection, 175
immunolectrophoresis, 26, 205
immunofixation, 25, 132, 214, 249
immunoglobulin, 125
immunoprecipitation, 124
immuno printing, 26
in-gel rehydration, 90
internal standard, 146
– pooled, 146, 349
iodoacetamide, 41, 98, 268, 366
ion-exchange chromatography, 225
ion-exchange membranes, 172
ion exchanger, 89, 366
IPG strips, 76, 79, 85, 354, 356, 360, 420
isocyanate, 120
isoelectric focusing, 3, 24, 63, 226, 321
– carrier ampholytes pH gradient, 69, 77, 223, 247, 253, 259
– immobilized pH gradient, 76, 321
isoelectric membranes, 78
isoelectric points, 3, 63, 70, 95, 226
isoenzymes, 25, 27, 28, 139, 140
isotachophoresis, 2, 38, 57
- j*
Joule heat, 4, 9, 18, 418
- k*
keratin, 119, 135
- l*
labeling optimization, 351
labeling reaction, 141, 143, 269, 346, 349, 425
laser capture micro dissection, 120
laser induced fluorescence, 12
lectin blotting, 179
lipid, 124
liquid chromatography, 50
loading control, blotting, 175
- low concentrated proteins, 118, 123, 125, 147
low molecular weight
– substances, 197
Lowry assay, 111
low sieving media, 25, 45
lysine labeling, 141, 146, 269, 349
lysis solution, 120, 342
- m*
macromolecules, 131
marker proteins, 41, 68, 69, 81, 217
mass spectrometry, 42, 50, 98, 107, 144, 158
– silver stained spots, 374
matrix-free system, 7, 78, 126
mega protein complexes, 14, 48
methylenebisacrylamide, 14
micellar electrokinetic chromatography, 10
micelles, 41, 113
microchip electrophoresis, 11, 65, 141
microdialysis, 123
minigels, 306
minimal labeling, 143, 349, 425
mistakes, 393
mixed micelles, 422
mobilities, 57, 65, 223
mobility shift electrophoresis, 139
mobility shift SDS-PAGE, 46
molecular sieve, 348, 424
molecular size, 41
molecular weights, 42, 70
moving boundary electrophoresis, 7
multifluorescence scanner, 153, 189
multiple gel casting, 295, 358
multiplex, 143
mutation detection methods, 35
- n*
narrow pH intervals, 73, 76, 89, 321, 324
native electrophoresis, 21, 25, 28, 34, 37, 47, 49, 223, 229
native polyacrylamide gels, DNA, 379
native samples, 112
negative staining, 281
– copper, 136
– imidazol zinc, 136, 281, 372
net charge, 64
next generation DNA sequencing, 33
nitrocellulose, 171, 316
nondetergent sulfobetains, 121
nonionic detergents, 47, 121, 181, 303, 429
non-restrictive gels, 25
normalization, 157
northern blotting, 168

- nucleic acids, sample preparation, 123, 385
 nylon membranes, 172
- o**
 off-gel isoelectric focusing, 79
 oligopeptides, 132
 optical density, 152
 organic dyes, 133
 over focusing, 96, 395
 over labeling, 144, 351, 425
 overheating, 19
 overlay, 16, 103, 330
 overloading, 416
 oxygen, 16
- p**
 PAGIEF, 65, 253, 396
 paper bridge-loading, 92, 121
 paraffin oil, 91, 357, 361, 422
 pattern comparison, 157
 PBS
 – cell washing, 119
 – removal, 395
 PEGylated proteins, 46
 Peltier cooling, 97
 peptides, 15, 44, 133, 265, 286, 301, 308, 414
 – IEF, 76
 pH adjustment, 143, 330, 347, 349, 354
 pH gradient, 64, 68, 70, 77, 86
 – measurement, 68
 – carrier ampholytes, 121
 pH value, 64
 phosphatase inactivation, 122
 phosphatase inhibitor, 342
 phosphoproteins, 139
 photodetectors, 33
 plant
 – proteins, 127
 – tissue, 345
 plastic backing, 16, 21, 286
 plastic mask, 311, 428
 plateau phenomenon, 73, 398
 polyacrylamide, 65
 – linear, 10, 68
 polyacrylamide gel electrophoresis, 37
 polyacrylamide gels, 14, 75, 132, 181
 polymerization, 15, 66, 396, 406
 polyvinylidene difluoride *see* PVDF membranes
 Ponceau S, 174, 319
 pooled internal standard, 146, 157, 349, 350
 pore size, 25, 273, 393
 – agarose gel, 13, 30
 – large, 45, 286
 – polyacrylamide gel, 14
- power supply, 17, 19, 97
 pre-labeling, 32, 107, 131, 140, 269, 290, 346
 precipitate lines, 26, 149
 precipitation, 37, 117, 123, 343, 394
 – urea, 95, 422
 prefocusing, 73, 77, 259, 335
 prefractionation, 78, 111, 125
 preparative isoelectric focusing, 77
 prerun, 80
 preserving, gels, 308, 376
 pressure blotting, 166, 311
 protease inactivation, 122
 protease inhibitors, 122, 303, 342
 proteases, 122
 proteins, 15, 37, 111
 – complexes, 47
 – concentration, 343
 – fragmentation, 115
 – identification, 158
 – IEF concentration, 399
 – loads, 342
 – quantification, 111, 149
 – sample preparation, 42
 – sequencing, 180
 – staining, 133
 proteome, 3
 – analysis, 4, 50, 341
 proteomics, 85, 106
 pulsed field DNA gel electrophoresis, 23, 30
 PVDF membranes, 158, 171, 174, 316
- q**
 quality
 – chemicals, 102, 196
 quantification, 138
 – proteins, 111, 149
 quantitative, 147
 – analysis, 60
 – evaluation, 149
 – results, 108
 quaternary structure, 114
- r**
 radioactive labeling, 141, 176
 reamplification, 34
 reducing, 268
 – reagent, 41
 reductants, 143, 269, 346, 394
 – saturation labeling, 351
 reduction, 115
 reference markers
 – fluorescent, 158
 rehydrated polyacrylamide gel, 66, 72, 217,
 229, 253, 264, 285

- rehydration, 49, 87, 89, 235, 387, 399, 407
 - loading, 90, 93, 356
 - solution, immobilized pH gradient, 333
 - solution, 90, 91, 222, 236, 238, 257, 285, 333, 357, 386
- removing support films, 189
- replicates, 147
- resolubilization
 - proteins, 124, 343
- resolution, 31, 85
- resolving gel, 38, 289
- resolving power, 64, 107
- reswelling tray, 91, 222, 236, 258, 332, 357, 387
- retardation coefficient, 28
- reverse staining, 136
- RNAse, sample preparation, 123
- rocket technique, 27, 149
- Rubisco, 127

- s**
- salt concentration, 75, 112, 118, 119, 123, 217, 230, 243, 253, 342, 400
- same-same experiment, 146, 351
- sample application strip, 67, 68, 248, 259, 335, 401
- sample buffer, 115
- sample preparation, 111
 - 2D electrophoresis, 118, 342
- sample wells, 17, 264
- saturation labeling, 143, 349, 350, 425
- ScreenPicker, 159
- SDS
 - electrophoresis, 40, 113
 - PAGE, 42, 267, 289, 366
 - polyacrylamide gels, 358
 - sample buffer, 98
 - treatment, 113, 122, 267, 346
- second dimension, 48, 306, 366
- secondary antibodies, 176, 180
- semiautomatic spot picker, 159, 189
- semi-dry blotting, 169, 173, 311, 426
 - buffers, 173
- semidry blotter, 189, 311
- sensitivity, 146
- separation ranges, 41
- separator IEF, 72
- serum electrophoresis, 29
- shelf life, 43, 44, 308, 424
- shot-gun proteomics, 76, 107
- silent polymerization, 15, 234, 277, 385, 393, 415
- silver staining, 34, 68, 144, 373
 - ammoniacal, 77, 135, 262
 - colloidal, 134, 215, 225, 241, 250, 261
 - DNA, 379, 432
 - drawbacks, 135
 - silver nitrate, 134, 281
- slot former, 198, 207, 231, 271, 381, 411
- smiling effect, 18, 418
- sodium dodecyl sulphate *see* SDS
- solidification time, 234, 246, 402
- solubilization, 112, 120, 124, 303, 343
- southern blotting, 168
- speckling, 138
- speed of migration, 18
- spermine base, 123
- spot detection, 156
- spot picking
 - list, 158
 - manual, 159
 - robot, 159, 189
 - semiautomated, 159, 189
- spot positions, 95
- stable isotope labeling, 141
- stacking gel, 38, 104, 234, 286, 289, 305, 316, 358, 384
- stain-free detection, 140
 - blot, 174
- staining, 133
 - agarose gels, 30, 214
 - blotting membranes, 318
 - blots, 174
 - gels, 133
 - of multiple gels, 371
 - trays, 189, 371
- starch gels, 13
- statistical evaluation, 157
- Stokes radius, 18, 28, 114
- Stokes shift, 137
- subcellular components, 126
- submarine chamber, 22
- support film, 16, 75, 311, 425, 426
- SYBR Green, 30

- t**
- tank blotting, 168, 172
 - buffers, 172
- TCEP, 349
- temperature, 68
 - IEF, 95, 247, 259, 363, 365, 398, 420
- theoretical isoelectric point, 120
- thermal convection, 103, 274
- thermostatic circulator, 17, 189
- thin-layer electrophoresis, 12
- thiourea, 90, 120, 395

time-stable minigels, 44
tissue sample stabilizer, 189
titration curve, 64, 93, 217, 229
– analysis, 80, 229
titration of the running buffer, 394
top-down proteomics, 107
tracking dye, 98 *see also* Bromophenol blue
transilluminator, 30, 158
tributylphosphine, 121
Tris base, 122
tryptophan, 111, 140
two-dimensional electrophoresis, 419
– high-resolution, 85
– horizontal gels, 367
– vertical, 306
– vertical PAGE, 289

u

ultrathin IEF gels, 132, 399
ultrathin-layer electrophoresis, 197
under labeling, 144, 351, 425
under focusing, 96
urea, 66, 71, 86, 118, 120, 265, 342, 427
UV
– activation, 140
– detection, 30, 131
– measurement, 149

v

vacuum blotting, 167
venetian blind effect, 18, 419
vertical
– gels, 101
– PAGE, 418
– setups, 99
– streaks, 422
– systems, 20
viscosity, 18, 274
viscous gels, 260
voltage, 18, 65, 96
volt-hour integrals, 96
von Willebrand factor, 13, 205

w

western blotting, 86, 138

z

zone electrophoresis, 2, 226
zone sharpening, 57
zwitterionic detergent, 72, 89, 118
zymogram, 66, 73, 139
zymography, 46, 140

