

Index

Note: Page numbers of article titles are in **boldface** type

- Acid phosphatase, electrophoresis of, **507–523**
- Acrylamide electrophoresis, of amylase isoenzymes, 591, 593
- Acute glomerulonephritis, C3 complement and, 448
- Acute myocardial infarction, common causes of false-positive CK-MB test for, **577–581**
serum CK levels in, 556–558
- Adult serum alkaline phosphatase, clinical significance of increased or decreased levels of, **525–532**
in osseous disease, 527–528
- Agammaglobulinemia, monoclonal gammopathy and, 454
- Agarose, as electrophoretic support medium, 403–407
- Albumin, and problems in electrophoretic process, 431–432
CSF, as index of blood-brain barrier integrity, 459
serum, abnormalities of, electrophoretic screening for, 441–443
- Alcoholic acute pancreatitis, and GGT₃ isoenzyme, 537
- Alcoholic hepatitis, and GGT₂ isoenzyme, 536–537
- Alkaline phosphatase, acetylation of, 515
and intracellular metabolism, 501
clinical significance of increased or decreased levels of, **525–532**
clinical use of, **491–506**
electrophoresis of, **507–523**
in hepatic cancer, 499
in liver cholestasis, 497–499
intestinal isoenzyme of, 500
PAGE separation of, analysis of, 494–500
placental, allelozymes of, 514–515
polyacrylamide gel technique in electrophoresis of, 510
- Alkaline phosphatase isoenzymes, clinical use of, **491–506**
“placental-like,” 517
- Alpha-amylase, electrophoretic assays of, 583–599
- Alpha₁-antitrypsin deficiency, serum protein electrophoresis screening for, 443–444
- Alpha-chain disease, 477–478
- Alpha₁ globulin, electrophoretic screening for, 443–444
- Alpha₂ globulin, electrophoretic screening for abnormal levels of, 444–446
- Alpha-heavy chain disease, **477–489**
- Alpha-heavy chain disease protein, 478–479
- Amido Black, in electrophoretic process, 430–431
- Amylase isoenzymes, electrophoretic assays of, **583–599**
- Anemia, hemolytic, serum protein electrophoresis of beta globulins and, 447
iron deficiency, decreased transferrin levels and, 447
- AP. See *Alkaline phosphatase*.
- Atransferrinemia, congenital, serum protein electrophoresis and, 447
- Autoimmune demyelination, 468
- Autoimmune disorders, immunoglobulin-alkaline phosphate complexes and, 501
- BCIP, in alkaline phosphatase isoenzyme separation, 493–494
- Bence Jones lambda bands, agarose gel in detection of, 404–405
- Bessey-Lowry-Brock method, of alkaline phosphatase isoenzyme separation, 492
- Beta-gamma bridge, 448–450
- Beta globulin, electrophoretic screening for abnormalities of, 447–448
- Biclonal gammopathies, 417, 418
- Bisalbuminemia, electrophoretic pattern of, 441–442
- Biuret, in electrophoretic process, 430
- Blood-brain barrier, cerebrospinal fluid and, 458–459

- Bone alkaline phosphatase, methods for improving electrophoretic resolution of, 511, 512
- Bone marrow serum, creatine kinase activity in, 552
- Brain, creatine kinase activity in, 550
in multiple sclerosis, 457, 458
- Bromphenol Blue, in serum protein electrophoresis prestaining, 429
- Buffers, and electrophoretic process, 430
in alkaline phosphatase isoenzyme separation, 493-494
- Burns, immunoglobulin levels and, 454-455
- C3 complement, electrophoretic screening for abnormal levels of, 448
- Cancer, lactate dehydrogenase levels in, 542
- Cardiac contusion, serum creatine kinase levels in, 560
- Cardiac disease, adult serum alkaline phosphatase in, 528-529
- Cardiac surgery, serum creatine kinase levels following, 562-563
- Cellulose acetate electrophoresis, of amylase isoenzymes, 592, 593
versus agarose, 403-407
- Cerebrospinal fluid, and creatine kinase levels following head injury, 560-561
electrophoresis of, immunofixation electrophoresis as adjunct to, 604
immunoglobulins of, origins of, 462
proteins of, in multiple sclerosis, 457-475
quantitative IgG changes in, 460-462
- Cerebrospinal fluid albumin-to-serum albumin ratio, as index of blood-brain barrier integrity, 459
- Ceruloplasmin, disorders associated with decrease in, 446
- Chromatography, column, for separation of creatine kinase isoenzymes, 567
in measurement of serum creatine kinase, 553
ion-exchange, for measurement of amylase isoenzymes, 593-594
- Cirrhosis, beta-gamma bridge and, 449
of liver, polyclonal gammopathy and, 449, 450
serum intestinal alkaline phosphatase and, 500
- CK. See *Creatine kinase*.
- CK-MB test for acute myocardial infarction, false-positive, common causes of, 577-581
- Complement band, in diagnosis of systemic lupus erythematosus, 408
- Congenital atransferrinemia, serum protein electrophoresis and, 447
- Coronary bypass surgery, serum creatine kinase levels following, 562-563
- Creatine kinase, and causes of false-positive test for myocardial infarction, 577-581
molecular forms of, 547-549
serum, pathologic conditions causing changes in, 556-564
variant bands of, 578-580
- Creatine kinase complexes, types I and II macro, 578-580
- Creatine kinase isoenzymes, 547-576
- CSF. See *Cerebrospinal fluid*.
- Cushing's syndrome, immunoglobulin levels and, 455
- Cytoplasmic creatine kinase, 547-548
tissue activities of, 549-550
- Demyelination, autoimmune, viruses and, 468
primary, in multiple sclerosis, 457
- Densitometers, in electrophoresis, 420-423
- Densitometry, and problems in the electrophoretic process, 432-438
- Dermatomyositis, serum creatine kinase levels in, 559
- Diabetes mellitus, elevated alkaline phosphatase in, 528
- Diffusion, in immunofixation electrophoresis, 413-414
- Dilution effect, on serum proteins, 428
- Drugs, and serum creatine kinase levels, 563
- Duchenne's muscular dystrophy, CK-MB elevation in, 577-578
creatine kinase activity in, 551-552, 559
- Electroendosmosis, of agarose, 405, 406
- Electrophoresis, acrylamide, of amylase isoenzymes, 591, 593
cellulose acetate, of amylase isoenzymes, 592, 593
immunofixation, usefulness of, in clinical laboratory, 601-605
of cerebrospinal fluid, immunofixation electrophoresis as adjunct to, 604
of serum proteins and isoenzymes, 403-605
problems of, 429-432
protein, immunofixation electrophoresis as adjunct to, 602-604
support media, 403-407
techniques of, in clinical laboratory, 403-426
- Epithelium, in alpha-heavy chain disease, 482-483
- Exercise, and creatine kinase activity, 550-551, 554-556
- Exfoliative dermatitis, immunoglobulin levels and, 454-455
- Experimental allergic encephalomyelitis, viruses and, 468

- "Fast liver" alkaline phosphatase fraction, diagnostic use of, 515
- Gamma-glutamyltransferase, clinical significance of, 531
- Gamma-glutamyltransferase isoenzymes, interpretation of electrophoretic patterns of, 533-540
- Gammopathies, biclonal, 417, 418
monoclonal, 409-413
triclinal, 417
- GGT₂ isoenzyme, alcoholic hepatitis and, 536-537
- GGT₃ isoenzyme, adenocarcinoma of pancreas and, 538
alcoholic acute pancreatitis and, 537
- Haptoglobin, disorders associated with decrease in, 46
- Head injury, serum creatine kinase levels in, 560-561
- Heat treatment, in pre-electrophoresis of alkaline phosphatase, 515
- Hemolytic anemia, lactate dehydrogenase level in, 542
serum protein electrophoresis of beta globulins and, 447
- Hemopexin, abnormalities associated with decrease in, 448
- Hepatic cancer, high molecular weight alkaline phosphatase in, 499
- Hepatic disease, adult serum alkaline phosphatase in, 526-527
beta-gamma bridge and, 449
decreased alpha₁ globulin and, 444
transferrin levels and, 447
- Hepatitis, viral, acute, lactate dehydrogenase levels in, 542, 543
- High molecular weight alkaline phosphatase, 495-497, 518
in liver cholestasis, 497-499
polyacrylamide gels and, 515
- Hodgkin's disease, lactate dehydrogenase levels in, 544
polyclonal gammopathy and, 450-451
- Hypergammaglobulinemia, beta-gamma bridge and, 449
- Hyperthyroidism, immunoglobulin levels and, 455
- Hypoalbuminemia, electrophoretic pattern of, 443
- Hypogammaglobulinemia, monoclonal gammopathy and, 453-454
- Hypothyroidism, serum creatine kinase levels in, 559-560
- IgA, cerebrospinal fluid levels of, in multiple sclerosis, 465
- IgG, free light chains of, in multiple sclerosis, 467
monoclonal gammopathy and, 451
polyclonal gammopathy and, 449-451
of the central nervous system, restricted heterogeneity of, in multiple sclerosis, 466-467
origin of elevated levels of, in multiple sclerosis, 462
qualitative abnormalities of, in cerebrospinal fluid, 463
- IgG index, as measure of central nervous system IgG synthesis, 460-462
- IgM, cerebrospinal fluid levels of, in multiple sclerosis, 465
- Immunoassay, of amylase isoenzymes, 594-595
- Immuno-electrophoresis, immunofixation
electrophoresis as adjunct to, 601-602
steps of, 412, 413
versus immunofixation, 413-420
- Immunoenzymetric methods, for separation of creatine kinase isoenzymes, 566-567
- Immunofixation electrophoresis, as adjunct to immuno-electrophoresis, 601-602
as adjunct to electrophoresis of cerebrospinal fluid, 604
as adjunct to routine protein electrophoresis, 602-604
usefulness of, in clinical laboratory, 601-605
versus immuno-electrophoresis, 413-420
- Immunoglobulins, monoclonal, 409-416
of cerebrospinal fluid, origin of, 462
synthesis of, in central nervous system, 459-460
- Immunoglobulin-alkaline phosphatase complexes, 501
- Immunoglobulin-bound creatine kinase, 548-549
- Immuno-inhibition, for separation of creatine kinase isoenzymes, 566
in measurement of serum creatine kinase, 553
- Immunologic disease, polyclonal gammopathy and, 450
- Immunoprecipitation, for separation of creatine kinase isoenzymes, 566
- Immunoproliferative small intestinal disease, 477, 478, 483
- Intestinal alkaline phosphatase, 491, 492
diagnostic use of, 516-517
electrophoretic zone of, 512, 514
- Intestinal alkaline phosphatase isoenzyme, 500
- Iron deficiency anemia, decreased transferrin levels and, 447

- Isoelectric focusing, for detection of oligoclonal bands in multiple sclerosis, 463–464
in measurement of amylase isoenzymes, 588–593
- “Kasahara” isoenzyme, of alkaline phosphatase, 518
- Kidney alkaline phosphatase, 515
- Lactate dehydrogenase isoenzymes, interpretation of, 541–545
- Leukemia, chronic lymphocytic, immunoglobulin levels and, 454
lactate dehydrogenase levels in, 542
monocytic, pseudomonoclonal spike and, 451
- Leukoencephalopathy, progressive multifocal, viruses and, 468
- Lichen myxedematosus, monoclonal gammopathy and, 452
- Light scatter, densitometry and, 432–433
- Linearity, densitometry and, 435–436
- Lipemia, and serum protein electrophoresis results, 428–429
- Liver, cancer of, high molecular weight alkaline phosphatase and, 496–497, 499
- Liver alkaline phosphatase, electrophoretic zone of, 511, 512
- Liver cholestasis, alkaline phosphatase level in, 527
mechanism of high molecular weight protein-lipid release in, 497–499
- Liver disorders, decreased ceruloplasmin and, 446
high molecular weight alkaline phosphatase and, 495–497
intestinal alkaline phosphatase in diagnosis of, 492
- Lung, creatine kinase activity in, 552
- Lymphoepithelial lesions, of alpha-heavy chain disease, 483
- Lymphoma(s), Mediterranean type, 477–478, 483–485
of alpha-heavy chain disease, 480–482
of gastrointestinal tract, general discussion of, 477–478
polyclonal gammopathy and, 450
primary small intestinal, 482
- Macroamylase, 584
- Malignancy(ies), alkaline phosphatase levels in, 516, 529–530
amylase level in, 588
monoclonal gammopathy and, 452
serum creatine kinase levels in, 563–564
tissue activities of creatine kinase in, 552
- Malignant monoclonal B-cell disease, immunoglobulin levels and, 454
- Mediterranean-type lymphoma, 477–478, 483–485
- Metabolism, intracellular, alkaline phosphatase and, 501
- Minimonooclonal bands, 409–412
- Mitochondrial creatine kinase, 548
pathologic conditions and, 564
- Monoclonal bands, detected by serum protein electrophoresis, 409–416
- Monoclonal gammopathy(ies), 409–413, 451–455
- Multiple sclerosis, cerebrospinal fluid proteins in, 457–475
electrophoretic pattern in, 463
free IgG light chains in, 467
intrathecal Ig synthesis and, 459–460
origin of elevated IgG in, 462
qualitative abnormalities of IgG in, 463
quantitative IgG changes in, 460–462
restricted heterogeneity of IgG in, 466–467
- Multiple sclerosis, viruses and, 468–470
- Muscle, cardiac, creatine kinase activity in, 549–550
serum creatine kinase following exercise and, 555–556
skeletal, creatine kinase activity in, 549, 550–551
serum creatine kinase following exercise and, 554–556
serum creatine kinase in disorders of, 558–563
- Muscular dystrophies, serum creatine kinase levels in, 559
- Myeloma, multiple, monoclonal gammopathy and, 451, 452
serum protein electrophoresis in detection of, 409–412
- Myocardial contusion, serum creatine kinase levels in, 560
- Myocardial infarction, acute, alkaline phosphatase in, 528
lactate dehydrogenase level following, 542, 544
- Myocardium, creatine kinase activity in, 550
serum creatine kinase following exercise and, 554–556
- Myometrium, creatine kinase activity in, 550
- Nagao’s isoenzyme, 517, 530
- Neoplasms, alkaline phosphatase level in, 529
- Nephrotic syndrome, increased alpha₂ macroglobulin and, 445
serum transferrin level and, 447

- Neuraminidase, in electrophoresis of alkaline phosphatase, 512, 513, 515
- Nodular lymphoid hyperplasia, in alpha-heavy chain disease, 483
- 5'-nucleotidase, clinical significance of, 530-531
- Oligoclonal IgG bands, detection of, in cerebrospinal fluid, 463-465
- Optic neuritis, primary, oligoclonal IgG bands and, 465
- Osseous disease, alkaline phosphatase level in, 527-528
- Osteoporosis, alkaline phosphatase bone isoenzyme and, 500
- PAGE. See *Polyacrylamide gel electrophoresis*.
- Pancreatic GGT₃ isoenzyme, 537-538
- Pancreatic insufficiency, amylase level in, 587-588
- Pancreatic pseudocyst, amylase level in, 588
- Pancreatitis, acute, amylase level in, 587
for alkaline phosphatase isoenzyme separation, 493-494, 510
- Polyacrylamide gel electrophoresis, for alkaline phosphatase isoenzymes, interpretation of, 494-500
of acid phosphatase, 519, 520
- Plasma cell dyscrasia, monoclonal gammopathy and, 451
- Plasma cells, in alpha-heavy chain disease, 483
- Plasmacytosis, 479
- Polyclonal gammopathy, 449-451
- Polymyositis, serum creatine kinase levels in, 559
- Ponceau S, in serum protein electrophoresis prestaining, 429
- Posture, and serum protein electrophoresis results, 429
- Prealbumin, electrophoretic pattern of, 442-443
- Pregnancy, alkaline phosphatase level during, 525
serum amylase activity during, 586-587
serum creatine kinase activity during, 556
- Prestaining for electrophoresis, problems of, 429-430
- Progressive multifocal leukoencephalopathy, viruses and, 468
- Protein(s), alpha-heavy chain disease, 478-479
of cerebrospinal fluid, in multiple sclerosis, 457-475
serum, electrophoretic patterns of, 407-413
interpretation of, 441-455
- Protein bands, normal, 407
- Protein inhibitors, in measurement of amylase isoenzymes, 594
- Pulmonary infarct, acute, alkaline phosphatase level in, 529
- Radioimmunoassay, for separation of creatine kinase isoenzymes, 567
in measurement of serum creatine kinase, 553-554
- Red-cell acid phosphatase, 519
- Regan's isoenzyme, 517, 529, 530
- Rhabdomyolysis, lactate dehydrogenase level in, 542, 543
serum creatine kinase levels in, 558-559
- Scatter effect, densitometry and, 432-433
- Serum albumin, abnormalities of, electrophoretic screening for, 441-443
- Serum proteins, and isoenzymes, electrophoresis of, 403-605
- Serum protein electrophoresis, interpretation of patterns, 441-455
potential problems in, 427-440
- Serum total proteins, dilution effect and, 428-429
- SPE. See *Serum protein electrophoresis*.
- Staining, in electrophoretic process, 430-432
- Starch gel electrophoresis, of acid phosphatase, 519, 520
- Support media, electrophoretic, 403-407
- Systemic amyloidosis, monoclonal gammopathy and, 451, 452
- Systemic lupus erythematosus (SLE), electrophoretic pattern of, 408-409
- Tofranil, and gamma-glutamyltransferase isoenzyme induction, 539
- Transferrin, and iron deficiency, 447
- Trauma, caused by cardiac surgery, and serum creatine kinase levels following, 562-563
caused by noncardiac surgery, and serum creatine kinase levels, 561-562
serum creatine kinase levels in, 560
- Triclonal gammopathies, 417
- Triglycerides, and serum protein electrophoresis results, 428-429
- TRIS-borate buffer, for alkaline phosphatase isoenzyme separation, 493
- TRIS-borate-MgCl₂ buffer, in electrophoresis of alkaline phosphatase, 510
- Tumor(s), creatine kinase activity in, 552

"Umbrella effect," in immunofixation electrophoresis, 414–415, 602

Viruses, and multiple sclerosis, 468–470

Waldenström's macroglobulinemia, monoclonal gammopathy and, 451, 452

Western-type primary small intestinal lymphoma, 485

Wheat-germ lectin, in electrophoresis of alkaline phosphatase, 512

Wilson's disease, decreased ceruloplasmin and, 446

Zone electrophoresis, 403–407

Zone truncation, densitometer and, 434–435