

Cumulative Index 2005

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

A

- Accreditation Council for Graduate Medical Education program, fine needle aspiration requirements of, 639
- Acinar cells, calcium disturbances in, in pancreatitis, 2–4
- Acquired immunodeficiency syndrome. *See* Human immunodeficiency virus infection.
- Acromegaly, colorectal cancer in, 147
- Acute lymphoblastic leukemia, stem cell transplantation for, 528–531
- Acute myeloid leukemia, stem cell transplantation for, 522–524
- Acute pancreatitis, **17–37**
clinical course of, 17
definition of, 20
genetic factors in, 31–32
mortality in, 17, 20, 23–24
multi-system organ failure in, 19–20
necrosis in, 19, 23–24
pathogenesis of, **1–15**
calcium signaling disturbances in, 2–4
cathepsin B in, 7–9
trypsin in, 9–11
zymogen activation in, 5–9
pathophysiology of, 18–19
severity of
defining, 20
predictors of, 20
clinical assessment in, 23
computed tomography in, 24–25
genetics, 31–32
inflammation markers in, 25–29
laboratory tests in, 23–24
marker combinations in, 31
multi-factorial scoring systems for, 21–23
observations in, 23
pancreas-specific markers in, 29–31
phospholipase A-2 in, 31
treatment of, 20
- Acute Physiology and Chronic Health Evaluation (APACHE) II criteria, in acute pancreatitis, 20, 22–23
- Adenofibroma, metanephric, 388–390
- Adenoid cystic carcinoma, of breast, cytormorphology of, 764–766
- Adenoma(s)
breast
lactating, cytormorphology of, 693
tubular, cytormorphology of, 693, 698
renal
classification of, 233, 235–239
metanephric, 292, 379–384
papillary, 284, 286
- Adenomyoepithelioma, of breast, cytormorphology of, 698–701
- Adenosis tumor, of breast, cytormorphology of, 698
microglandular, 694
sclerosing, 694
- Adrenal glands, renal cell carcinoma spread to, 444
- Adrenal rests, 232–233
- Adult respiratory distress syndrome, in acute pancreatitis, 19
- AE1/AE3, in renal cell carcinoma, 249, 251
- AIDS. *See* Human immunodeficiency virus infection.
- Air drying, of breast cytology specimens, 640–643
- Albarran and Imbert renal tumor classification, 234

- Alcoholic pancreatitis
CFTR gene mutations in, 92–93
 pancreatic secretory trypsin inhibitor
 Kazal type in, 67–68
- Algorithms, prognostic, for renal cell carcinoma surgical treatment, 452–456
- ALL (acute lymphoblastic leukemia), stem cell transplantation for, 528–531
- Alloderm, for skin coverage, 592
- Alpha-TFEB* gene fusion, in renal carcinoma, 370–375
- Alveolar soft part sarcoma, renal, 363–367, 369–370
- American Association of Blood Banks
 accreditation by, 488, 490, 492–493
 standards of, 488, 490, 492–493
- American Association of Tissue Banks
 accreditation by, 488, 490–493
 Skin Council of, 595–596
 standards of, 488, 490–493, 512–513
- American College of Radiology Breast Imaging Reporting and Data System (BIRADS), 674–676, 733–734
- American Society of Cytology
 cytologic grading recommendations of, 747–749
 fine needle aspiration requirements of, 639–640
 report terminology recommendations of, 753, 756
- AML (acute myeloid leukemia), stem cell transplantation for, 522–524
- Amsterdam criteria, for hereditary nonpolyposis colorectal cancer, 187–189
- Amylase, in pancreatitis, 29
- Anaplasia, in nephroblastoma, 348–350
- Anemia
 aplastic, stem cell transplantation for, 524–526
 in colorectal cancer, 148
- Angiomyolipoma, epithelioid, renal, 331, 405–408
- Anisonucleosis, in breast cancer, 734, 736
- Anterior lamellar keratoplasty, 611–613
- Antibiotics, for cardiovascular tissue disinfection, 576–577
- Antimitochondrial antibody stain, for oncocytoma, 320
- Aortic grafts. *See* Cardiovascular tissue grafts.
- APACHE (Acute Physiology and Chronic Health Evaluation) II criteria, in acute pancreatitis, 20, 22–23
- APC* gene mutations
 in colorectal cancer, 137, 139–140, 142
 in gastric cancer, 209
 pancreatic carcinoma risk in, 121
- Aphidicolin-inducible fragile site, mutations at, in papillary renal cell carcinoma, 285
- Aplastic anemia, stem cell transplantation for, 524–526
- Apocrine carcinoma, of breast, cytomorphology of, 766–767
- Apoptosis, in *Helicobacter pylori* infections, 203–204
- Aspirin, for colorectal cancer prevention, 158–159
- ASPL-TFE3* gene fusion, in renal carcinoma, 364–366, 369–370
- Assisted reproduction technologies, cells and tissues for. *See* Reproductive cell and tissue banking.
- Ataxia-telangiectasia, pancreatic carcinoma risk in, 122
- Atlanta International Symposium on Acute Pancreatitis, acute pancreatitis classification of, 20
- ATM* gene mutations, pancreatic carcinoma risk in, 122
- Atrophy, gastric, in *Helicobacter pylori* infections, 200–201
- Atypical hyperplasia, of breast, cytomorphology of, 718–724, 830–832
- Autodigestion, in pancreatitis, 18–19
 protection against, 63–64
- Autologous tissue donation, retrieval of, 480
- Azathioprine, for skin graft rejection, 594
- B**
- B lymphocytes, depletion of, for islet cell transplantation, 550–551
- B72.3 monoclonal antibody, in atypical breast hyperplasia, 723

- Barium enema, in colorectal cancer, 151
- Bcl-2 protein, in oncocytoma, 320
- Beckwith-Wiedemann syndrome, nephroblastoma in, 343, 346
- Bell, Elexious Thompson, renal tumor classification of, 235–236
- Beta cell transplantation. *See* Islet cell replacement therapy.
- Bethesda criteria, for hereditary nonpolyposis colorectal cancer, 187–189
- BHD* gene mutations, 270
- Binney renal tumor classification, 233
- Biomechanical properties, of bone and soft tissue grafts, 511–512
- Biopsy
 - of breast
 - core needle, 635–637, 658–663, **679–688**
 - fine needle aspiration. *See* Breast lesions, fine needle aspiration biopsy in.
 - of colon polyps, 160
- BIRADS (American College of Radiology Breast Imaging Reporting and Data System), 674–676, 733–734
- Birt-Hogg-Dubé syndrome, renal neoplasms in, 269–270, 328–329
- oncocytosis, 326
- renal cell carcinoma, 269–270
- Black's nuclear grading scheme, for breast carcinomas, 748–749, 811–812
- Bleeding
 - in colon polyps, 148
 - in colorectal cancer, 145, 148, 150–151
- Blood, testing of, in tissue donor, 478
- Bloom syndrome, nephroblastoma in, 343, 346
- Bone grafts, **499–518**
 - allograft, versus autologous, 499
 - alternatives to, 515
 - autologous
 - incorporation of, 500
 - versus allograft, 499
 - bone morphogenetic proteins and, 501–502
 - cancellous, 500, 505
 - clostridial infection transmission in, 489
 - combination cortical and cancellous, 500
 - complaints about, 514
 - cortical, 500, 505
 - demineralized, 501–502, 505
 - distribution of, 514
 - documentation of, 514
 - freeze drying of, 512–513
 - goals of, 500–501
 - HIV transmission in, 487
 - immunology of, 475, 502–503
 - incoming, inspection of, 513–514
 - incorporation of, 499–501
 - indications for, 483, 504–505
 - mechanical properties of, 511–512
 - osteoarticular, 503, 507
 - osteoconduction in, 500
 - packaging of, 509
 - physical modification of, 501
 - processing of, 504–505, 508–512
 - rehydration of, 513
 - soft tissue grafts combined with, 507
 - specialty, 505–506
 - sterilization of, 510–511
 - storage of, 512–513
 - tissue engineering for, 501
 - types of, 504
- Bone marrow transplantation. *See* Stem cell transplantation.
- Bone morphogenic proteins, in bone grafts, 501–502
- Bone-patellar tendon-bone grafts, 507
- Botryoid nephroblastoma, 367
- BRCA* gene mutations, pancreatic carcinoma risk in, 121–122, 124–126
- Breast cancer
 - carcinoma with choriocarcinomatous features, cytomorphology of, 771–772
 - core needle biopsy in
 - costs of, 658
 - versus fine needle aspiration biopsy, 635–637, 658–663, **679–688**
 - cytomorphology of, **733–760, 761–775**
 - accuracy of, 750–752
 - adenoid cystic carcinoma, 764–766
 - apocrine carcinoma, 766–767
 - carcinoma with
 - choriocarcinomatous features, 771–772
 - diagnostic criteria for, 734–735
 - ductal carcinoma and ductal carcinoma in situ, 735–738, 754–755

Breast cancer (*continued*)

- ductal lavage for, 833–839
 - ductoscopy for, 792, **845–850**
 - false diagnosis in, 751–752, 754–755
 - fine needle aspiration biopsy in. *See* Breast lesions, fine needle aspiration biopsy in.
 - for grading, 747–749
 - lipid-rich carcinoma, 769–771
 - lobular carcinoma and lobular carcinoma in situ, 736, 739–740, 754–755
 - medullary carcinoma, 736, 746–747
 - metaplastic carcinoma, 762–764
 - mucinous (colloid) carcinoma, 736, 745, 789
 - nipple fluid, **787–794**
 - papillary carcinoma, 736, 742–745
 - report terminology for, 753–756
 - secretory carcinoma, 767–769
 - squamous cell carcinoma, 761–762
 - tubular carcinoma, 736, 741–742
 - within triple test context, 733–734
- familial, pancreatic carcinoma risk in, 121–122
- intraoperative imprint cytology in, **795–807**
- prognostic factors in, **809–825**
- DNA ploidy, 814–816
 - HER-2/neu* oncogene, 816–818
 - hormone receptors, 812–814
 - lymph node status, 810
 - nuclear grade, 811–812
 - p53 tumor suppressor, 818–819
 - tumor size, 810–811
 - tumor type, 811

Breast lesions

- benign, cytomorphology of, **689–712**
- epithelial, 696–698
- fibroepithelial, 700–701
- in males, 696, 754–755
- inflammatory, 689–691
- lymphohistiocytic, 705–706
- mesenchymal, 701–705
- myoepithelial, 698–700
- pregnancy-related changes, 692–693, 754–755
- proliferative, 694–696
- treatment-induced changes, 691–692
- common malignant, cytomorphology of, **733–760**
- core needle biopsy in

- costs of, 658
- versus fine needle aspiration biopsy, 635–637, 658–663, **679–688**
- cytomorphology of
 - benign, **689–712**
 - directed vacuum-assisted biopsy in, 659–667
 - ductoscopy in, 792, **845–850**
 - fine needle aspiration biopsy in. *See* Breast lesions, fine needle aspiration biopsy in.
 - in cancer, **733–760, 761–775**
 - in fibrocystic change, **713–731**
 - in high-risk proliferative disease, **713–731**
 - in premalignant disease, **713–731**
 - in proliferative disease, 694–696
 - intraoperative imprint cytology in, **795–807**
 - nipple fluid for, **787–794**
- diagnostic terminology of, 644–646
- ductal lavage in, 833–839
- ductoscopy in, 792, **845–850**
- fine needle aspiration biopsy in, **631–654**
- ancillary studies in, 646–649
- “blind” (in clinically normal tissue), 634, 647–648
- credentialing for, 638–640
- diagnostic terminology in, 644–646
- for prognosis, **809–825**, 829–833
- image-directed, **655–678**
- assessment categories in, 674–676
- cyst aspiration, 670–672
- cytologic interpretation in, 674
- cytology limitations in, 657–659
- equipment for, 656–657
- magnetic resonance imaging, 667–668
- solid masses, 672–674
- stereotactic, 636–637, 664–667
- ultrasound, 637, 663–664, 667–670
- versus core needle biopsy, 658–663
- in benign disease, **689–712**
- in common malignant tumors, **733–760**
- in fibrocystic change, **713–731**
- in high-risk proliferative disease, **713–731**
- in premalignant disease, **713–731**

- in rare malignant tumors, **761–775**
- indications for, 633–637
- medical-legal issues in, **777–785**
- post-biopsy recommendations in, 650–651
- practice guidelines for, 631–633
- prevailing recommendations versus contemporary practices in, **631–654**
- random periareolar, 648
- technique for, 640–644
- training for, 638–640
- versus core needle biopsy, 635–637, 658–663, **679–688**
- intraoperative imprint cytology in, **795–807**
- malignant. *See* Breast cancer.
- nipple fluid cytology in, **787–794**
- nonpalpable, **655–678**
 - core needle biopsy in, 658–663, 682–683
 - fine needle aspiration biopsy in, 656–659, 682
 - recommendations for, versus contemporary practices, **631–654**
 - image-guided biopsy of
 - BIRADS criteria for, 674–676
 - cyst aspiration, 670–672
 - cytologic interpretation in, 674
 - magnetic resonance imaging in, 667–668
 - solid mass, 672–674
 - stereotactic, 664–667
 - ultrasound, 663–664, 668–670
- rare malignant, cytomorphology of, **761–775**

C

- Cadherins, in *Helicobacter pylori* infections, 203
- CagA, of *Helicobacter pylori*, gastric cancer and, 200, 203
- Calcific pancreatitis, tropical, 55, 66–67
- Calcium phosphate, as bone graft substitute, 515
- Calcium receptor, defects of, in hereditary pancreatitis, 74
- Calcium signaling, disturbances of, in pancreatitis, 2–4
- Cam 5.2, in renal cell carcinoma, 249
- Cancer
 - breast. *See* Breast cancer.
 - colorectal. *See* Colorectal cancer.
 - gastric. *See* Gastric cancer.
 - ovarian, familial, pancreatic carcinoma risk in, 121–122
 - pancreatic. *See* Pancreas, cancer of.
- Candidiasis, transmission of, in tissue grafts, 488
- Carboxypeptidase, early activation of, in pancreatitis, 5–9
- Carboxypeptidase B activation protein, in pancreatitis, 30
- Carcinoembryonic antigen, in colorectal cancer, 148–149
- Carcinoma
 - adenoid cystic, of breast, 764–766
 - apocrine, of breast, 766–767
 - collecting duct. *See* Collecting duct carcinoma.
 - cystic, of breast, 752
 - ductal, 735–738, 754–755
 - lipid-rich, of breast, 769–771
 - lobular, of breast, 736, 739–740, 754–755
 - medullary, of breast, 736, 746–747
 - metaplastic, of breast, 762–764
 - mucinous, tubular, and spindle cell, 393–398
 - mucinous (colloid), of breast, 736, 745, 789
 - pancreatic. *See* Pancreas, cancer of.
 - papillary, of breast, 736, 742–745
 - renal cell. *See* Renal cell carcinoma(s).
 - sarcomatoid carcinoma, renal, 291–292, 419, 440–441
 - secretory, of breast, 767–769
 - squamous cell, of breast, 761–762
 - tubular, of breast, 736, 741–742
 - with choriocarcinomatous features, of breast, 771–772
- Cardiovascular tissue grafts, **571–585**
 - autologous, 579–580
 - cellular, 580–581
 - disease transmission in, 488, 575
 - donor criteria for, 572–574
 - durability of, 578–579
 - history of, 571
 - immunology of, 579
 - indications for, 483
 - processing of, 576–577
 - procurement of, 572
 - retrieval of, 575–576
 - storage of, 577–578
 - thawing of, 578

- Cardiovascular tissue grafts (*continued*)
 transport of, 576
 types of, 572
- Cartilage grafts. *See* Soft tissue grafts.
- Cathepsin B, in premature digestive protease activation, in pancreatitis, 7–9
- Causation, in malpractice, 779
- CD10, in renal cell carcinoma, 248–250, 252–253
- CD14, in renal cell carcinoma, 252
- CD15, in renal cell carcinoma, 249–250, 254–255
- CD117, in renal cell carcinoma, 249, 251–254
- CDKN* gene mutations, in familial atypical multiple mole melanoma, 118–120
- CDKN2A* gene mutations, in familial pancreatic cancer, 124
- Celecoxib, for colorectal cancer prevention, 159
- Cellularity, in breast cancer, 734, 736
- Centers for Medicare and Medicaid Services, provisions to increase organ donation, 608
- Ceramic materials, as bone graft substitutes, 515
- CFTR* gene mutations
 idiopathic chronic pancreatitis in
 alcoholic pancreatitis and, 92–93
 clinical features of, 87–88
 gene testing in, 82–87, 90–92
 pancreatic secretory trypsin inhibitor Kazal type and, 73–74
 pathobiology of, 88–90
 prevention of, 96
 sclerosing cholangitis and, 93
 susceptibility to, 95
 trypsin inhibitor gene and, 82–87
 pancreatic carcinoma risk in, 122
 pancreatic disease in, pathobiology of, 79–81
- Chemotherapy
 for breast cancer, cytomorphic changes in, 692
 for nephroblastoma, 352
 gonadotoxicity of, 558–560
- Cholangitis, sclerosing, *CFTR* gene mutations in, 93
- Cholecystectomy, colorectal cancer after, 147
- Chromophobe renal cell carcinoma, 321–324
 eosinophilic variant, 321–324
 differential diagnosis of, 331–334
 molecular diagnostic techniques for, 288–289
 epidemiology of, 321
 granular-appearing cells in, 322
 gross pathology of, 321
 immunohistochemical markers for, 252–255, 323
 in Birt-Hogg-Dubé syndrome, 328–329
 microscopic pathology of, 321–323, 436
 molecular diagnostic techniques for, 288–289, 323
 oncocytomas and, 326–328
 polygonal type, 322
 prognosis for, 418, 439–440, 451–452
 sarcomatoid differentiation or transformation of, 323, 441
 versus clear cell renal carcinoma with eosinophilic cells, 334
- Chronic pancreatitis
 idiopathic. *See* Idiopathic chronic pancreatitis.
 in Kazal type pancreatic secretory trypsin inhibitor mutation, **61–78**
- Chymotrypsin, activation of, 62–63
- Chymotrypsinogen, action of, 62–63
- CK7
 in metanephric adenoma, 380
 in renal cell carcinoma, 249, 253–255
- CK8, in renal cell carcinoma, 253, 311–312
- CK18, in clear cell renal cell carcinoma, 311–312
- CK19, in renal cell carcinoma, 253, 311–312
- CK20, in renal cell carcinoma, 254–255
- Claims, legal, review of, in breast fine needle aspiration biopsy, 782–783
- Clear cell renal cell carcinoma, **305–316**
 clinical features of, 305–306
 compact-alveolar pattern of, 308–309
 cytology of, 310–311
 differential diagnosis of, 312
 eosinophilic variant, 329–334

- epidemiology of, 305
 - familial, 260–265
 - gross pathology of, 306–307
 - immunohistochemical markers for, 248–250, 253
 - in Birt-Hogg-Dubé syndrome, 269–270, 328–329
 - in tuberous sclerosis, 271–272
 - microcystic pattern of, 309–310
 - microscopic pathology of, 307–310, 434
 - molecular diagnostic techniques for, 281–283, 311–312
 - prognosis for, 418, 439–440, 451–452
 - sarcomatoid differentiation of, 441
 - tubular pattern of, 309
- Clear cell sarcoma, renal, versus metanephric stromal tumor, 387
- Clostridial infections, transmission of, in bone grafts, 489
- CLTC-TFE3* gene fusion, in renal carcinoma, 364, 367
- Collagenous spherulosis, of breast, cytomorphology of, 694
- Collecting duct carcinoma
 - immunohistochemical markers for, 251
 - low-grade (mucinous, tubular, and spindle cell carcinoma), 393–398
 - microscopic pathology of, 437–438
 - molecular diagnostic techniques for, 289–291
 - oncocytic features of, 330
 - prognosis for, 419
 - versus tubulocystic carcinoma, 399–400
- College of American Pathologists, tissue bank accreditation by, 495–496
- Colloid (mucinous) carcinoma, of breast, 736, 745, 789
- Colon
 - cancer of. *See* Colorectal cancer.
 - obstruction of, in cancer, 149
 - perforation of, in cancer, 149
 - polyps of
 - cancer arising from, 136–145, 154, 160
 - clinical presentation of, 149–150
 - colonoscopy in, 152–154, 163–164
 - differential diagnosis of, 153–154
 - DNA mismatch repair expression in, 190–191
 - endoscopic mucosal resection for, 161–162
 - genetics of, 137–143
 - histology of, 136–137
 - hyperplastic, 137, 153–154
 - microsatellite instability testing of, 190–191
 - pathology of, 153–154
 - polypectomy for, 159
 - removal of, 159–162
 - screening for
 - in average risk, 150–154
 - in high risk, 154
 - serrated, 137
 - tubulous, 136
 - tubulovillous, 136
 - villous, 136
 - pseudopolyps of, 154

Colonoscopy, in colorectal cancer, 152–154, 163–164

Colorectal cancer, **135–177**
 - carcinoma in situ, 143
 - clinical presentation of, 145, 148–149
 - computed tomography in, 154–156
 - epidemiology of, 135, 144–145
 - genetic factors in, 137–145
 - hereditary nonpolyposis. *See* Hereditary nonpolyposis colon cancer.
 - histology of, 136–137, 143
 - locations of, 143
 - magnetic resonance imaging in, 156
 - metastasis from, 144
 - computed tomography in, 154–156
 - magnetic resonance imaging in, 156
 - microsatellite instability testing in, 184–185, 189–190
 - new developments in, 163–164
 - pathology of, 143–144, 184–185
 - pathophysiology of, 136–143, 160
 - histologic, 136–137
 - molecular, 137–143
 - prevention of, 158–162
 - risk factors for, 144–145
 - screening for, 150–154
 - in average risk, 150–154
 - in high risk, 154
 - underuse of, 135–136
 - sporadic, microsatellite instability testing in, 184–185, 189–190
 - spread of, testing for, 154–156
 - staging of, 143–144, 154–158
 - stool genetic markers for, 162–163
 - ultrasonography in, 156–158

Comedocarcinoma, cytomorphology of, 724–726

- Communication, for malpractice prevention, 781–782
- Compact-alveolar pattern, of clear cell renal cell carcinoma, 308–309
- Comparative genetic hybridization, for renal neoplasms, 280
chromophobe renal cell carcinoma, 288
oncocytoma, 288
- Complex sclerosing lesion, of breast, cytomorphology of, 695
- Computed tomography
in colorectal cancer, 154–156
in pancreatitis, 24–25
- Conduct, malpractice and, 778
- Conjunctival limbal cell transplantation, 617–618
- Connective tissue grafts. *See* Soft tissue grafts.
- Consent, for tissue donation, 476–477
- Core needle biopsy, of breast, 635–637, 658–663, **679–688**
- Corneal grafts. *See also* Keratoplasty.
indications for, 483
- C-reactive protein, in pancreatitis, 25–26, 31
- Creatinine, in acute pancreatitis, 24
- Credentialing, for breast fine needle aspiration biopsy, 638–640
- Creutzfeldt-Jakob disease, screening for, in tissue donation, 477
- Crohn's colitis, colorectal cancer in, 147
- Cryopreservation
of bone grafts, 512–513
of cardiovascular tissue, 577–578
of embryos, 560, 564–565
of skin grafts, 600
of soft tissue grafts, 512–513
- Cullen sign, in pancreatitis, 23
- Cyclooxygenase-2 inhibitors, for colorectal cancer prevention, 159
- Cyclosporine, for skin graft rejection, 594
- Cyst(s)
breast, aspiration of, 670–672
pancreatic, molecular diagnosis of, 108–111
- Cystic carcinoma, of breast, cytomorphology of, 752
- Cystic fibrosis, pancreatic disease in, **79–100**
alcoholic pancreatitis and, 92–93
carcinoma, 122
genetic factors in, 90–92
in cystic fibrosis carriers, 93–95
pathobiology of, 79–81
prevention of, 96
sclerosing cholangitis and, 93
susceptibility to, 95
- Cystic nephroma, 354–355
- Cystic partially-differentiated nephroblastoma, 354–355
- Cytokeratin. *See also* CK.
in renal cell carcinoma, 249, 251, 311–312
- Cytokines. *See also specific cytokines.*
in acute pancreatitis, 28–29
in *Helicobacter pylori* infections, 201, 203
- Cytology. *See also* Cytomorphology.
in clear cell renal cell carcinoma, 310–311
- Cytomegalovirus infections, from skin grafts, 593–594
- Cytomorphology
of breast lesions
benign, **689–712**
common malignant, **733–760**
core needle biopsy in, 635–637, 658–663, **679–688**
fine needle aspiration biopsy in.
See Breast lesions, fine needle aspiration biopsy in.
in fibrocystic change, **713–731**
in high-risk proliferative disease, **713–731**
in premalignant disease, **713–731**
medical-legal issues in, **777–785**
prognostic value of, **809–825, 827–843**
rare malignant, **761–775**
of lumpectomy surgical margins, intraoperative, 801–805
of nipple fluid, **787–794**
of sentinel lymph nodes, intraoperative, 795–801
-
- D**
- Daclizumab, for islet cell transplantation, 549–550
- DCC* gene, loss of
in colon cancer, 140, 142
in gastric cancer, 209

- Death-associated protein-kinase, in gastric cancer, 211–212
- Denys-Drash syndrome, nephroblastoma in, 343–344
- Dermal matrix, acellular, for skin coverage, 592
- Desmoid tumor (fibromatosis), of breast, cytomorphology of, 702–703
- Diabetes mellitus
 colorectal cancer in, 147
 fibrocalculous pancreatic, 66
 in hereditary pancreatitis, 49–52
 islet cell replacement for.
See Islet cell replacement therapy.
- Diet, colorectal cancer and, 146, 158
- Dimethylsulfoxide, for cardiovascular tissue preservation, 577–578
- DIRC2* gene mutations, in familial clear cell renal cell carcinoma, 264
- Discharge, nipple. *See* Nipple fluid cytology.
- DNA
 hypermethylation of, in gastric cancer, 210–212
 methylation of, in colon cancer, 143
- DNA mismatch repair deficiency
 in colon polyps, 190–191
 in gastrointestinal cancer
 clinicopathologic behavior and, 186–187
 colon, 140–142
 for identification, 188–189
 gastric, 205–207
 pathology and, 184–185
 performance of, 183–184
 principles of, 179–181
 test panels for, 181–183
- DNA ploidy, in breast cancer, prognostic value of, 814–816
- Donors, tissue
 bone, 508–509
 cardiovascular, 572–575
 consent forms for, 476–477
 contraindications for donation, 478
 for autologous use, 480
 islet cells, 542–544
 living, tissue retrieval from, 480
 reconstruction of body, 480
 referral of, 476
 screening for risk factors in, 477–478
 skin, 596–597
 soft tissue, 508–509
 testing of, 478–479
 tissue retrieval from, 479–480
- DPC4* gene mutations, in familial pancreatic cancer, 124
- Duct ectasia, cytomorphology of, 690
- Ductal carcinoma and ductal carcinoma in situ, cytomorphology of, 724–727, 735–738, 754–755
- Ductal lavage, for nipple fluid cytology, 791, 833–839
- Ductoscopy, in breast lesions, 792, **845–850**
- Dukes classification, of colorectal cancer, 143–144
- Duty, malpractice and, 779–780
- Dyshesion, in breast cancer, 734, 736
- E**
-
- E-cadherin
 in *Helicobacter pylori* infections, 203
 in renal cell carcinoma, 249–251, 253–254
- Ecchymosis, in pancreatitis, 23
- Edwards syndrome (trisomy 18), nephroblastoma in, 343, 346
- Elastase
 activation of, 62–63
 polymorphonuclear, in acute pancreatitis, 26–27, 31
- Electrocautery, in colon polypectomy, 160
- Electron microscopy, in renal oncocytoma, 319
- Embryos, freezing of, 560, 564–565
- Endoscopic mucosal resection, for colorectal polyps and cancer, 161–162
- Endoscopy, videocapsule, in colorectal cancer, 164–165
- Endotoxemia, in acute pancreatitis, 19
- Environmental factors, in colorectal cancer, 144, 146
- Eosinophilic variant
 of chromophobe renal cell carcinoma, 288–289, 321–324, 331–334
 of clear cell renal cell carcinoma, 329–334

- Epithelial membrane antigen
 in metanephric adenoma, 380
 in renal cell carcinoma, 249, 252–253,
 323
- Epithelioid angiomyolipoma, renal, 331,
 405–408
- Estrogen receptors, in breast cancer,
 prognostic value of, 812–814
- Ethical issues
 in reproductive medicine, 565–566
 in tissue donation, 477
- Ethylene oxide sterilization
 of bone grafts, 510–511
 of soft tissue grafts, 510–511
- Ewing renal tumor classification, 234
- EWS-FLII* gene fusion, in primitive
 neuroectodermal tumor, 408–410
- Expert review, in breast fine needle
 aspiration biopsy, 783–784
- Expert witness, in malpractice hearing, 779
- Extracellular signal-regulated MAP kinases,
 in *Helicobacter pylori* infections, 203
- Eye Bank Association of America,
 607–609
 accreditation by, 488, 490–491
 standards of, 488, 490–491
- Eye tissue grafts, **607–624**
 for keratoplasty, 610–616
 corneal layers for, 610–611
 lamellar, 611–614
 penetrating, 614–616
 for limbal stem cell transplantation,
 616–620
 conjunctival, 617–618
 ex vivo, 619–620
 keratolimbal, 618–619
 living-related, 618
 indications for, 483
 legislation on, 608–609
 regulations on, 609–610
 scleral, 620–621
-
- F**
- Familial adenomatous polyposis
 as cancer risk factor, 146
 cancer prevention in, 158–159
 differential diagnosis of, 153
 genetic factors in, 137–139
 pancreatic carcinoma risk in, 122
- Familial atypical multiple mole melanoma,
 pancreatic carcinoma risk in, 118–120
- Familial breast cancer, pancreatic
 carcinoma risk in, 121–122
- Familial nephroblastoma, 345
- Familial ovarian cancer, pancreatic
 carcinoma risk in, 121–122
- Familial pancreatic carcinoma. *See*
 Hereditary pancreatic carcinoma.
- Familial renal cell carcinomas, **259–277**
 clear cell, 260–265
 in Birt-Hogg-Dubé syndrome,
 269–270
 in von Hippel-Lindau disease,
 259–263
 leiomyomatosis with, 267–269
 oncocytoma and, 270–271
 papillary, 265–267, 272
 tuberous sclerosis and, 271–272
 with chromosome 3 translocation,
 264
- Fascia grafts. *See* Soft tissue grafts.
- Fat necrosis, in breast, cytomorphology
 of, 691
- Fecal occult blood testing, in colonic
 lesions, 150–151
- Fertility, tissue banking for. *See*
 Reproductive cell and tissue
 banking.
- FH* gene mutations, in hereditary
 leiomyomatosis with renal cell
 carcinoma, 267–269
- FHIT* gene mutations, in clear cell renal
 cell carcinoma, 264, 282
- Fiber, dietary, for colorectal cancer
 prevention, 158
- Fibroadenoma, of breast
 cytology limitations in, 657–658
 cytomorphology of, 693, 700–701,
 754–755
- Fibrocalculus pancreatic diabetes, 66
- Fibrocystic breast disease,
 cytomorphology of, 713–714
- Fibromatosis, of breast, cytomorphology
 of, 702
- Fine needle aspiration biopsy
 in breast lesions. *See* Breast lesions,
 fine needle aspiration biopsy in.
 in clear cell renal cell carcinoma,
 310–311
- FISH. *See* Fluorescent in situ
 hybridization (FISH).

- Fisher's grading scheme, for breast carcinomas, 748–749, 811–812
- Fite renal tumor classification, 234
- Flank ecchymosis (Gray-Turner sign), in pancreatitis, 23
- FLII-EWS* gene fusion, in primitive neuroectodermal tumor, 408–410
- Fluorescent in situ hybridization (FISH), for renal neoplasms, 280, 282
chromophobe renal cell carcinoma, 288, 323
oncocytoma, 288
papillary renal cell carcinoma, 286
- Food and Drug Administration, tissue banking regulations of, 487–490, 609–610
- Fractional allelic loss, in pancreatic cancer, 106
- Fragile histidine triad gene mutations, in clear cell renal cell carcinoma, 264, 282
- Fuhrman grade, of renal cell carcinoma nuclei, 448–450
- Fumarate hydratase, defects of, in hereditary leiomyomatosis with renal cell carcinoma, 267–269

G

- Galactocele, cytomorphology of, 693
- Garceau renal tumor classification, 233
- Gastric cancer
Helicobacter pylori-associated, **197–222**
cellular apoptosis-proliferation balance in, 203–204
epidemiology of, 198–199
genomic instability in, 205–206
inflammation in, 202
intestinal metaplasia or dysplasia in, 206–214
molecular changes in, 202–205
natural history of, 197–198, 200–202
risk factors for, 198, 200–202
subtypes and, 204–205
surveillance for, 214
transduction pathway imbalance in, 202–203
virulence factors and, 200
microsatellite instability in, 186
- Gene therapy, for islet cell transplantation, 550

- Genetic factors
in familial adenomatous polyposis, 137–139
in hereditary nonpolyposis colon cancer, 137–139
in pancreatic cancer. *See also* Hereditary pancreatic carcinoma.
molecular analysis of, **101–116**
in pancreatitis
acute, 31–32
hereditary, 39–46, 54–55
idiopathic chronic, **79–100**
pancreatic carcinoma risk and, 120–121
- Giemsa stain, of breast cytology specimens, 641
- Glasgow criteria, modified, for acute pancreatitis, 22–23
- Graft(s). *See specific type, e.g.,* Bone grafts.
- Graft-versus-host disease, in stem cell transplantation, 519–520
for acute lymphoblastic anemia, 528–530
for aplastic anemia, 526
- Graft-versus-leukemia effect, 520
- Granular cell tumors, of breast, cytomorphology of, 703–704
- Granulomatous mastitis, cytomorphology of, 690–691
- Grawitz, Paul Albert, renal tumor classification of, 232–233, 235
- Gray-Turner sign, in pancreatitis, 23
- Gynecomastia, cytomorphology of, 696, 754–755
- ## H
-
- Hale's colloidal iron stain
in chromophobe renal cell carcinoma, 323
in renal oncocytoma, 319–320
- Hamartoma, breast, cytology limitations in, 658
- Heidelberg-Rochester Classifications of 1997, for renal tumors, 235–236, 238–242
- Helicobacter pylori*, in gastric carcinogenesis. *See* Gastric cancer, *Helicobacter pylori*-associated.
- Hematocrit, in pancreatitis, 23

- Hematopoietic stem cell transplantation.
See Stem cell transplantation.
- Hepatitis C, transmission of, in tissue grafts, 489
- Hepatocarcinoma-intestine-pancreas/
pancreatitis-associated protein I, in
pancreatic cancer, 107
- Hepatocyte growth factor/scatter factor, in
hereditary papillary renal cell
carcinoma, 265–267
- Hereditary leiomyomatosis, renal cell
carcinoma with, 267–269
- Hereditary nonpolyposis colon cancer
as cancer risk factor, 147
cancers associated with, 180
criteria for, 187–188
epidemiology of, 180
genetic factors in, 137–139
microsatellite instability testing in,
180–181
for patient identification,
187–189
methods for, 181–184
pathology and, 184–185
MSH6 gene mutations in, 189–190
pancreatic carcinoma risk in, 121
- Hereditary pancreatic carcinoma,
117–133
classification of, 118
familial, 122–126
future perspectives on, 126–128
syndromes associated with, 118–122
- Hereditary pancreatitis, **39–59**
complications of, 49–54
pancreatic carcinoma risk in, 52–54,
120–121
pancreatic secretory trypsin inhibitor
expression and. See Pancreatic
secretory trypsin inhibitor.
presentation of, 46–48
protease serine 1 defects in, 39–46,
54–55
symptoms of, 48–50
- Hereditary papillary renal cell carcinoma,
265–267, 285
- HER-2/neu* oncogene, in breast cancer,
648–649, 816–818
- HIV infection. See Human
immunodeficiency virus infection.
- HMB45
in epithelioid angiomyolipoma,
406–407
in translocation carcinoma, 370, 373
- Hodgkin's disease, stem cell transplantation
for, 531–532
- Hormone replacement therapy, breast fine
needle aspiration in, 649
- Horseshoe kidney, nephroblastoma in,
341–342
- Human immunodeficiency virus infection
screening for, in tissue donation, 477
transmission of
in eye tissue grafts, 609
in skin grafts, 593–594
in tissue transplantation, 487
- Human leukocyte antigens
in bone grafts, 502–503
in cardiovascular tissue grafts, 579
matching of, in tissue banking, 475
- Hypercalcemia, pancreatitis in, 4
- Hyperglycemia, in acute pancreatitis, 24
- Hypermethylation, in gastric cancer,
210–212
- Hypoxia-inducible factor, regulation of, in
von Hippel-Lindau disease, 262–263
-
- I**
- Idiopathic chronic pancreatitis, **79–100**
alcoholic pancreatitis and, 92–93
clinical findings in, 68–70, 87–88
cystic fibrosis and, 95–96
genetic factors in, 82–87
CFTR gene in, 82–87
testing for, 90–92
trypsin inhibitor gene in, 82–87
in cystic fibrosis carriers, 93–95
pancreatic secretory trypsin inhibitor
Kazal type in, 64–65, 67–68
pathobiology of, 79–81, 88–90
prevention of, 96
sclerosing cholangitis and, 93
- Immunodeficiency, primary, stem cell
transplantation for, 533–534
- Immunohistochemical markers, for renal
neoplasms
chromophobe renal cell carcinoma,
252–253, 323
clear cell renal cell carcinoma,
248–250, 311–312
collecting duct carcinoma, 251
epithelioid angiomyolipoma, 406–407
metanephric stromal tumor, 386
mixed epithelial and stromal tumor,
404
mucinous, tubular, and spindle
carcinoma, 400–401

- nephroblastoma, 351–352
 oncocytoma, 253–255, 320
 papillary renal cell carcinoma,
 250–251
 primitive neuroectodermal tumor,
 410
 renal cell carcinomas, **247–257**
 synovial sarcoma, 412
 translocation carcinoma, 367, 369,
 375
 tubulocystic carcinoma, 400–401
- Immunoisolation, in islet cell
 transplantation, 551
- Immunology, of tissue banking, 475
 bone grafts, 502–503
 cardiovascular, 579
- Immunosuppressive therapy, for islet cell
 transplantation, 549–550
- In vitro fertilization, cells and tissues for.
See Reproductive cell and tissue
 banking.
- Infections
 in acute pancreatitis, 20
 of skin grafts, 593–594
- Infertility treatment, tissue banking for.
See Reproductive cell and tissue
 banking.
- Inflammation
 in *Helicobacter pylori* infections, 202
 in pancreatitis, 18–19
- Inflammatory bowel disease, colorectal
 cancer in, 147
- Inflammatory markers, in acute
 pancreatitis, 17–37
- Interleukin(s)
 in acute pancreatitis, 28
 in *Helicobacter pylori* infections, 201,
 203
- Intestinal metaplasia, in gastric cancer,
 206–214
- Intralobar nephrogenic rests, 353–354, 387
- Intraoperative imprint cytology, in breast
 cancer
 in lumpectomy margin assessment,
 801–805
 in sentinel lymph node assessment,
 795–801
- Islet cell replacement therapy, **541–556**
 cell collection for, 542–544
 cell culture for, 546
 cell processing for, 544–546
 contraindications for, 547
 future directions in, 550–553
 history of, 541–542
 immunoisolation for, 551
 immunosuppression before, 549–550
 indications for, 546–547
 infusion in, 548–549
 stem cells for, 552
 tolerance induction in, 550–551
 versus pancreas transplantation, 541
 xenogenic cells for, 551–552
-
- J**
- Janus kinase 3 deficiency, stem cell
 transplantation for, 534
- Joint Commission on Accreditation of
 Health Care Organizations, tissue
 bank inspections by, 493–494
- Joint grafts. *See* Soft tissue grafts.
- c-JUN N-terminal MAP kinases, in
Helicobacter pylori infections, 203
- Juvenile polyposis, as cancer risk factor,
 147
-
- K**
- Kazal type pancreatic secretory trypsin
 inhibitor. *See* Pancreatic secretory
 trypsin inhibitor, Kazal type.
- Keratinocytes, cultured, application of,
 skin graft template for, 592
- Keratolimbic allografts, 618–619
- Keratoplasty, 610–616
 corneal layers for, 610–611
 lamellar, 611–614
 penetrating, 614–616
- Kidney
 horseshoe, nephroblastoma in,
 341–342
 neoplasms of. *See* Renal neoplasms.
- Ki-67/MIB-1, evaluation for, in breast
 lesions, 649
- K-ras* gene mutations
 in colon cancer, 141–142
 in gastric cancer, 209
 in pancreatic cancer, 103–104
 in pancreatic cyst, 109
-
- L**
- Lactating adenoma, cytomorphology of,
 693
- Lamellar keratoplasty, 611–614

- Lavage, ductal, for nipple fluid cytology, 791, 833–839
- Legal harm, in breast fine needle aspiration biopsy, 783–784
- Legal issues
in breast fine needle aspiration biopsy, 777–785
claims review, 782–783
communication, 781–782
duty, 779–780
expert review, 783–784
legal harm, 783–784
misdiagnosis, 783–784
principles of, 778–779
in eye tissue grafts, 608–609
in reproductive medicine, 565–566
- Leiomyomatosis, hereditary, renal cell carcinoma with, 267–269
- Leukemia, stem cell transplantation for
acute lymphoblastic, 528–531
acute myeloid, 522–524
- Leukotrienes, in *Helicobacter pylori* infections, 201
- Li-Fraumeni syndrome, nephroblastoma in, 343
- Ligament grafts. *See* Soft tissue grafts.
- Limbal cell transplantation, 616–620
conjunctival, 617–618
ex vivo, 619–620
keratolimbal, 618–619
living-related, 618
- Linkage analysis, in familial pancreatic carcinoma, 123
- Lipase, in pancreatitis, 29
- Lipid-rich carcinoma, of breast, cytomorphology of, 769–771
- Lipoma, of breast, cytomorphology of, 704
- LKB1* gene mutations, pancreatic carcinoma risk in, 120
- Lobular carcinoma and lobular carcinoma in situ, cytomorphology of, 727–728, 736, 739–740, 754–755
- Loss of heterozygosity
in colon cancer, 141, 143
in gastric cancer, 209
in renal neoplasms, 279–280
chromophobe renal cell carcinoma, 288–289
clear cell renal cell carcinoma, 281–283
collecting duct carcinoma, 289–290
oncocytoma, 288–289
papillary renal cell carcinoma, 287–288
- Lumpectomy margins, intraoperative imprint cytology in, 801–805
- Lymph nodes
axillary, in breast cancer, prognosis and, 810
renal cell carcinoma extension into, 445–446
sentinel, in breast cancer, intraoperative imprint cytology in, 795–801
- Lymphohistiocytic proliferations, of breast, cytomorphology of, 705–706
- Lymphoma, stem cell transplantation for, 531–532
- Lynch syndrome. *See* Hereditary nonpolyposis colon cancer.
- Lyophilization, of skin grafts, 600
-
- M**
- MADH4* gene mutations, in familial pancreatic cancer, 124
- Magnetic resonance imaging
in breast needle biopsy, 667–668
in colorectal cancer, 156
- Mainz Classification of 1986, for renal tumors, 235, 237–239
- Malabsorption, in hereditary pancreatitis, 51
- Malignant melanoma, in familial atypical multiple mole melanoma, pancreatic carcinoma risk in, 118–120
- Masood Cytology Index, for breast lesions, 728, 839–840
- Mass spectrometry, surface-enhanced laser desorption ionization, in pancreatic cancer, 107
- Mastitis, cytomorphology of, 689–691
- Mayo Clinic, renal cell carcinoma prognostic algorithm and reporting form of, 455–456, 459–460
- Medical-legal issues. *See* Legal issues.
- Medullary carcinoma
breast, cytomorphology of, 736, 746–747
renal, 331, 419

- Melan A, in translocation carcinoma, 370
- Melanoma, in familial atypical multiple mole melanoma, pancreatic carcinoma risk in, 118–120
- Melicow renal tumor classification, 233–234
- Memorial Sloan-Kettering Cancer Center, renal cell carcinoma prognostic algorithm of, 452–453
- Meniscus grafts, 508
- Mesenchymal tumors, of breast, cytomorphology of, 701–705
- Mesothelioma, renal cell carcinoma with, 248
- Mesotrypsin, 71
- c-MET* gene mutations, in hereditary papillary renal cell carcinoma, 265–267, 285
- Metal appliances, as bone graft substitutes, 515
- Metanephric neoplasms, **379–392**
adenofibroma, 388–390
adenoma, 292, 379–384
stromal, 384–387
- Metaplastic carcinoma, of breast, cytomorphology of, 762–764
- Metastasis
from colorectal cancer, 144
 computed tomography in, 154–156
 magnetic resonance imaging in, 156
from metanephric adenoma, 383
from nephroblastoma, 351–352
from renal cell carcinoma, 441–442, 445–447, 458
from translocation renal carcinomas, 365
- α -Methylacyl-CoA racemase, in renal cell carcinoma, 249, 251, 253
- Methylation, DNA, in colon cancer, 143
- MHL1* gene mutations, in gastric cancer, 205, 208, 211–212
- MHL3* gene mutations, in gastric cancer, 207
- MHS2* gene mutations, in gastric cancer, 205, 207
- MHS3* gene mutations, in gastric cancer, 205, 207
- Microarray analysis
 in breast lesions, 649
 in gastric cancer, 213–214
- Microcystic pattern, of clear cell renal cell carcinoma, 309–310
- Microdissection-based genotyping, in pancreatic cancer, 106
- Microglandular adenosis, of breast, cytomorphology of, 694
- Micrografts, skin, 592–593
- Microphthalmia transcription factor, in translocation renal carcinoma, 370, 374–375
- Microsatellite instability testing
 in colon polyps, 190–191
 in gastrointestinal cancer, **179–196**
 clinicopathological behavior and, 186–187
 for identification, 188–189
 gastric, 186–187, 205–209
 hereditary nonpolyposis colorectal cancer, 180–181, 183–185, 187–191
 high-level, 181–189, 207–209
 low-level, 181–182, 184, 186, 188–189, 207–208
 MSH6 gene mutations in, 189–190
 panels for, 181–183
 pathology and, 184–185
 performance of, 183–184
 principles of, 179–181
 sporadic colorectal cancer, 184–185, 189–190
 versus colon polyps, 190–191
 in renal neoplasms, 280
 chromophobe renal cell carcinoma, 288
 clear cell renal cell carcinoma, 281
 oncocytoma, 288
- MiRF/TFE family translocation carcinomas, renal, 363–370
- Mismatch repair deficiency. *See* DNA mismatch repair deficiency.
- Mixed epithelial and stromal tumor, renal, 402–405
- MLH* gene mutations
 in colon cancer, 138
 pancreatic carcinoma risk in, 121
- MLH1* gene mutations
 in colon polyps, 190–191

MLH1 gene (*continued*)
 in hereditary nonpolyposis colon cancer, 180, 183–185, 188–190

Molecular techniques, for renal neoplasms, **279–303**
 chromophobe renal cell carcinoma, 288–289
 clear cell renal cell carcinoma, 281–283
 collecting duct carcinoma, 289–291
 metanephric adenoma, 292
 oncocytoma, 288–289, 320
 papillary adenoma, 284, 286
 papillary renal cell carcinoma, 283–288
 renal cell carcinoma with Xp11.2 translocations, 292–294
 sarcomatoid carcinoma, 291–292

Monocyte chemotactic protein 1, in acute pancreatitis, 18, 31–32

Monomorphism, in breast cancer, 734, 736

Monosomy, of various chromosomes, in collecting duct carcinoma, 289–290

Mortality, in stem cell transplantation, 519, 521

MSH gene mutations
 in colon cancer, 138
 pancreatic carcinoma risk in, 121

MSH2 gene mutations
 in colon polyps, 190–191
 in hereditary nonpolyposis colon cancer, 180–181, 183–184, 188–190

MSH6 gene mutations
 in gastric cancer, 205, 207, 209
 in hereditary nonpolyposis colon cancer, 180–181, 184, 189–190

MUC1 protein, in renal cell carcinoma, 249–251

Mucinous, tubular, and spindle cell carcinoma, 393–398

Mucinous (colloid) carcinoma, of breast, 736, 745, 789

Mucocele-like lesion, of breast, cytomorphology of, 697

Multiarray assay, for colorectal cancer, 163

Multi-system organ failure, in pancreatitis, 19–20

Muscle specific actin, in atypical breast hyperplasia, 723–724

MutL protein
 in gastric cancer, 205, 207
 in hereditary nonpolyposis colon cancer, 180

MutS protein
 in gastric cancer, 205
 in hereditary nonpolyposis colon cancer, 180

Myocardial cells, transplantation of, 580–581

Myoepithelial neoplasms, of breast, cytomorphology of, 698–701

Myofibroblastoma, of breast, cytomorphology of, 701

Myospherulosis, in breast, cytomorphology of, 691

N

National Cancer Institute, microsatellite instability testing recommendations of, 181

National Organ and Tissue Donor Act, on monetary compensation, 477

Necrosis
 fat, in breast, cytomorphology of, 691
 in acute pancreatitis, 19, 23–24
 in renal cell carcinoma, prognostic value of, 450–452

Negligence, law of, 778

Neoplasms, renal. *See* Renal neoplasms.

Nephrectomy, specimen handling and reporting after
 partial, 426–427
 radical, 422–425

Nephroblastic neoplasms, **341–361**. *See also* Nephroblastoma.
 classification of, 342
 cystic partially-differentiated nephroblastoma, 354–355
 nephroblastomatosis, 352–354
 nephrogenic rests, 352–354

Nephroblastoma
 anaplastic, 348–350
 botryoid, 367
 clinical course of, 352
 clinical features of, 345–346
 cystic partially-differentiated, 354–355
 development from nephrogenic rests, 354

- distribution of, 341–342
epidemiology of, 341
familial disposition to, 345
gross pathology of, 346–347
immunohistochemical markers for, 351–352
metastatic, 351–352
microscopic pathology of, 347–350
multicentric, 345
nephrogenic rests and, 345
nuclear unrest in, 350
outcome of, 352
pathogenesis of, 342–345
pathology of, 346–352
posttherapy changes in, 351
prognosis for, 348–350
staging of, 346–347
syndromes associated with, 342–345
treatment of, 352
versus metanephric adenoma, 382–383
- Nephroblastomatosis, 352–354
- Nephrogenic rests, 352–354
multicentric nephroblastoma and, 345
versus metanephric stromal tumor, 387
- Nephroma, congenital mesoblastic, versus mixed epithelial and stromal tumor, 405
- Neuroblastoma
oncocytoïd renal cell carcinoma with, 331
stem cell transplantation for, 526–538
- Neurofibromatosis, type 1,
nephroblastoma in, 343
- Neurolemmoma, of breast, cytomorphology of, 701
- Nipple fluid cytology, **787–794**
in cancer risk assessment, 829–833
in Paget's disease, 792
in papilloma, 788–790
of aspirated fluid, 790
of ductal lavage fluid, 791, 833–839
of ductoscopic sample, 792, **845–850**
of scraped tissue, 792
of secretions, 790
value of, 787–788
- Nitric oxide synthase, in *Helicobacter pylori* infections, 205
- Noncomedo ductal carcinoma in situ, cytomorphology of, 726–727
- Non-O-TFE3* gene fusion, in renal carcinoma, 364, 367, 369
- Nonsteroidal anti-inflammatory drugs, for colorectal cancer prevention, 158–159
- North American National Wilms Tumor Study Group staging system, 346
- Nuclear factor-κB, in *Helicobacter pylori* infections, 203
- Nuclear grade, of renal cell carcinoma, 419, 447–450
- Nuclear membranes, irregular, in breast cancer, 734, 736
- Nuclear unrest, in nephroblastoma, 350
- Nucleoli, prominent, in breast cancer, 734, 736
-
- O**
- Oncoblasts, microscopic appearance of, 319
- Oncocytes, microscopic appearance of, 318–319
- Oncocytic renal neoplasms, **317–339**. *See also* Chromophobe renal cell carcinoma; Oncocytomas, renal. differential diagnosis of, 329–334
hybrid, 326–327
in Birt-Hogg-Dubé syndrome, 328–329
oncocytosis, 324–326
- Oncocytomas, renal, 318–321
atypical features in, 319
chromophobe renal cell carcinoma and, 326–328
differential diagnosis of, 331–334
epidemiology of, 318
familial, 270–271
gross pathology of, 318
histology of, 318–320
immunohistochemical markers for, 253–255, 320
in Birt-Hogg-Dubé syndrome, 328–329
metachronous, 326
molecular diagnostic techniques for, 288–289, 320
multi-focal, 324–326
prognosis for, 320–321
tubulocystic pattern of, 318
- Oncocytosis, renal, 324–326
- Oocytes, banking of, 560
cryobiology of, 561–562
indications for, 563–564
- Organ failure, in pancreatitis, 19–20

Osteoarticular grafts, 503, 507
 immunology of, 503
 storage of, 512–513

Ovary

cancer of, familial, pancreatic
 carcinoma risk in, 121–122
 cancer treatment toxicity to, 558–559
 tissue from
 autotransplantation of, 563–564
 banking of, 560–561, 563–564
 cryobiology of, 561–562

P

p16 gene mutations

in familial pancreatic cancer, 124
 in pancreatic cyst, 109

p53 gene mutations

in breast cancer, 818–819
 in colon cancer, 141–143
 in familial pancreatic cancer, 124
 in gastric cancer, 209
 in pancreatic cyst, 109

Paget's disease, of breast, cytomorphology
 of, 792

Pancreas

cancer of
 epidemiology of, 101
 hereditary. *See* Hereditary
 pancreatic carcinoma.
 in hereditary pancreatitis,
 52–54, 120–121
 molecular diagnosis of, **101–116**
 cystic lesions, 108–111
K-ras oncogene in,
 103–104
 proteomics in, 107–108
 specimens for, 102
 telomerase activity in,
 104–105
 tumor suppressor allelic
 loss analysis in,
 105–107
 progression of, 102
 cysts of, molecular diagnosis of,
 108–111
 function of, 1
 inflammation of. *See* Acute
 pancreatitis; Chronic
 pancreatitis; Pancreatitis.
 intraepithelial neoplasia of, 102
 necrosis of, in acute pancreatitis, 19,
 23–24
 pseudocyst of, molecular analysis of,
 110
 transplantation of, versus islet cell
 transplantation, 541

Pancreatic duct, obstruction of
 in acute pancreatitis, 4
 in cystic fibrosis, 79–81

Pancreatic secretory trypsin inhibitor (PSTI, SPINK 1)

action of, 18, 62–64
 defects of, in hereditary pancreatitis,
 54–55

discovery of, 61–62

Kazal type, **61–78**

action of, 63–64
 defects of

clinical features of, 68–70
 gene–gene interactions in,
 73–74

genetic testing in, 74

in alcoholic pancreatitis,
 67–68

in chronic pancreatitis,
 71–73

in idiopathic chronic
 pancreatitis, 64–65,
 82–87

in tropical pancreatitis,
 64–67

pathophysiology of, 70–71
 severe, 72–73

protective function of, 63–64
 structure of, 54, 63

Pancreatic-associated protein, in
 pancreatitis, 29

Pancreatitis

acute. *See* Acute pancreatitis.
 chronic. *See* Chronic pancreatitis.
 hereditary. *See* Hereditary
 pancreatitis.
 idiopathic chronic. *See* Idiopathic
 chronic pancreatitis.
 tropical calcific, 55, 66–67

Panicytokeratin, in renal cell carcinoma,
 253

Pap stain, of breast cytology specimens,
 640–643

Papillary carcinoma, of breast,
 cytomorphology of, 736, 742–745

Papillary renal cell adenoma, 284, 286

Papillary renal cell carcinoma

familial, 265–267, 272
 hereditary, 265–267, 285
 immunohistochemical markers for,
 250–251, 381–383
 in Birt-Hogg-Dubé syndrome,
 328–329
 microscopic pathology of,
 434–435

- molecular diagnostic techniques for, 283–288
- oncocytic features of, 330
- papillary thyroid carcinoma with, 272
- prognosis for, 418–419, 439–440, 451
- sarcomatoid differentiation of, 441
- versus clear cell renal cell carcinoma, 312
- versus metanephric adenoma, 380–382
- Papillary thyroid carcinoma, papillary renal cell carcinoma with, 272
- Papilloma, breast, cytomorphology of, 696–697, 754–755, 788–790
- Parvalbumin
- in oncocytoma, 320
 - in renal cell carcinoma, 252–253, 323
- Pediatric patients
- renal tumors in. *See also* Nephroblastoma.
 - classification of, 342
 - stem cell transplantation in, **519–540**
 - autologous, 519
 - cell harvesting for, 519
 - for acute lymphoblastic leukemia, 528–531
 - for acute myeloid leukemia, 522–524
 - for aplastic anemia, 524–526
 - for Hodgkin's disease, 531–532
 - for lymphoma, 531–532
 - for neuroblastoma, 526–528
 - for primary immune deficiencies, 533–534
 - selection of cells for, 520–522
 - versus adult transplantation, 520
- Penetrating keratoplasty, 614–616
- Perilobar nephrogenic rests, 353
- Peritoneal lavage, in pancreatitis, 23
- Periumbilical ecchymosis, in pancreatitis, 23
- Perlman syndrome, neuroblastoma in, 343, 346
- Peutz-Jeghers syndrome
- as cancer risk factor, 147
 - colon polyps in, 153–154
 - pancreatic carcinoma risk in, 120
- Phospholipase A-2, in pancreatitis, 31
- Phylloides tumors, breast, cytology limitations in, 657–658
- Physicians Insurers Association of America, 777
- PMS* gene mutations, in colon cancer, 138
- PMS1* gene mutations
- in gastric cancer, 205, 207
 - in hereditary nonpolyposis colon cancer, 181
- PMS2* gene mutations
- in gastric cancer, 205, 207
 - in hereditary nonpolyposis colon cancer, 180
- Polymerase chain reaction
- in colorectal cancer, 163
 - in pancreatic cancer, 106
 - in translocation-associated gene fusions, 373
- Polymorphonuclear elastase, in pancreatitis, 26–27, 31
- Polyps, colon. *See* Colon, polyps of.
- Posterior lamellar keratoplasty, 613–614
- Postpolypectomy syndrome, 160
- PRCC-TFE3* gene fusion, in renal carcinoma, 364–365, 368–370
- Pregnancy, breast cytomorphology in, 692–693, 754–755
- Primitive neuroectodermal tumor, renal, 408–410
- Procalcitonin, in pancreatitis, 27–28
- Procarboxypeptidase-B, in pancreatitis, 29–30
- Proelastase, action of, 62–63
- Progesterone receptors, in breast cancer, prognostic value of, 812–814
- Proliferative breast disease, cytomorphology of atypical hyperplasia, 718–724, 830–832
- ductal carcinoma in situ, 724–727, 735–738, 754–755
 - lobular carcinoma in situ, 727–728, 736, 739–740, 754–755
 - malignant, 717–718
 - versus nonproliferative breast disease, 714
 - with atypia, 717
 - without atypia, 714–717
- Prosthetic heart valves. *See* Cardiovascular tissue grafts.

Protease serine 1 (cationic trypsinogen), defects of
 in hereditary pancreatitis, 39–46, 54–55
 pancreatic carcinoma risk in, 120–121

Proteomics, in pancreatic cancer, 107–108

PRSS1 gene mutations, in hereditary pancreatitis, 39–46, 73

Pseudoangiomatous stromal hyperplasia, of breast, cytomorphology of, 704–705

Pseudocyst, pancreatic, molecular analysis of, 110

Pseudopolyps, colon, 154

PSF-TFE3 gene fusion, in renal carcinoma, 364, 367

PSTI. *See* Pancreatic secretory trypsin inhibitor.

Pulmonary artery grafts. *See* Cardiovascular tissue grafts.

Q

Quality control, in reproductive tissue cryobanking, 566–567

R

Rabies, transmission of, in tissue grafts, 489

Radial scars, of breast, cytomorphology of, 695

Radiation
 for bone graft sterilization, 510–511
 for soft tissue graft sterilization, 510–511

Radiation therapy
 for breast cancer, cytomorphologic changes in, 692
 gonadotoxicity of, 558–560

Radiography, in acute pancreatitis, 24

Radiologic Diagnostic Oncology Group Study, of breast fine needle aspiration biopsy, 658–659

Ranson score, for pancreatitis, 20–23

Ras association domain family 1A gene mutations, in clear cell renal cell carcinoma, 282

ras oncogene, in pancreatic cancer, 103–104

RASSFLA gene mutations, in clear cell renal cell carcinoma, 282

Rayer, Pierre François Olive, renal tumor classification of, 231–232

RB gene mutations, in collecting duct carcinoma, 289

Reactive oxygen species, in *Helicobacter pylori* infections, 202, 205

Regulations, tissue banking, **487–498**, 609–610

Rejection, of skin grafts, 594

Renal cell carcinoma(s)
 adrenal involvement in, 444
 chromophobe. *See* Chromophobe renal cell carcinoma.
 classification of, 235, 237–239, 418–419, 434–447, 458
 clear cell. *See* Clear cell renal cell carcinoma.
 completeness of resection of, 420
 epidemiology of, 305
 familial. *See* Familial renal cell carcinomas.
 histologic types of, 418–419, 434–440
 immunohistochemical markers for, **247–257**
 mesothelioma with, 248
 metastasis from, 441–442, 445–447, 458
 microscopic vascular invasion of, 420–421
 nuclear grade of, 419, 447–450
 oncocytoid, neuroblastoma with, 331
 outcome prediction models for, 421–422
 papillary. *See* Papillary renal cell carcinoma.
 perinephric fat involvement in, 444–445
 primary tumor characteristics in, 442, 444–445, 447
 prognosis for, 417–422
 after surgical treatment, **433–464**
 risk factors for, 305
 specimen handling and reporting for, **417–432**
 frozen section, 428–429
 in partial nephrectomy, 426–427
 in radical nephrectomy, 422–425
 morcellated, 427–428
 needle core biopsy, 428
 prognostic factors in, 417–422
 staging of, 420

- surgical treatment of
 prognosis after, **433–464**
 algorithms for, 452–456
 histologic subtype and, 434–440
 necrosis and, 450–452
 nuclear grade and, 447–450
 primary tumor size and, 447
 reporting form for, 459–460
 sarcomatoid differentiation and, 440–441
 TNM classification and, 441–447, 458
 specimen handling and reporting for, 422–427
 tumor size and, 419–420
 with sarcomatoid elements, 291–292
 with Xp11.2 translocation, 292–294, 363–370
- Renal cell carcinoma marker, 247–250, 252–253, 370
- Renal neoplasms. *See also specific types.*
 classification of
 history of, **231–246**
 nephroblastic, 342
 papillary renal cell adenoma, 284
 pediatric, 342
 renal cell carcinoma, 235, 237–239, 418–419, 434–447, 458
 clear cell renal cell carcinoma. *See* Clear cell renal cell carcinoma.
 epithelial, **279–303**
 epithelioid angiomyolipoma, 331, 405–408
 immunohistochemical markers for. *See specific tumors,* immunohistochemical markers for.
 metanephric, **379–392**
 mixed epithelial and stromal, 402–405
 molecular diagnosis of, **279–303**
 mucinous, tubular, and spindle cell carcinoma, 393–398
 nephroblastic, **341–361**
 oncocytic, **317–339**. *See also* Oncocytomas, renal.
 primitive neuroectodermal, 408–410
 rare, **393–416**
 renal cell carcinoma. *See* Renal cell carcinoma(s); *specific types.*
 specimen handling and reporting for, **417–432**
 synovial sarcoma, 411–413
 translocation carcinomas, **363–378**
 tubulocystic carcinoma, 393–395, 398–402
- Renal vein, renal cell carcinoma extension into, 445
- Reproductive cell and tissue banking, **557–569**
 chemotherapy toxicity and, 558–560
 cryobiology of, 561–562
 ethical issues in, 565–566
 indications for, 483, 562–565
 legal issues in, 565–566
 options for, 560–561
 quality control in, 566–567
 radiation therapy toxicity and, 558–560
- Restriction fragment length polymorphism analysis, in renal neoplasms
 chromophobe renal cell carcinoma, 288
 clear cell renal cell carcinoma, 281
 oncocytoma, 288
- Rh immunization, in bone grafts, 503
- Rhabdoid component, of clear cell renal cell carcinoma, 329–330
- Rolling circle amplification, in pancreatic cancer, 108
- Ron* gene mutations, in oncocytoma, 320
- Rosai-Dorfman disease, of breast, cytomorphology of, 705–706
-
- S**
- Sarcoma, renal
 alveolar soft part, 363–367, 369–370
 clear cell, versus metanephric stromal tumor, 387
 synovial, 411–413
- Sarcomatoid carcinoma, renal
 molecular diagnostic techniques for, 291–292
 prognosis for, 419, 440–441
- Scarff-Richardson tumor-grading system, for breast carcinomas, 811–812
- Scars, radial, of breast, cytomorphology of, 695
- Scleral grafts, 620–621
- Sclerosing adenosis, of breast, cytomorphology of, 694
- Sclerosing cholangitis, *CFTR* gene mutations in, 93

- Secretory carcinoma, of breast,
cytomorphology of, 767–769
- Semen, banking of, 562–563
- Sentinel lymph nodes, intraoperative
imprint cytology in, 795–801
- Serine protease inhibitor. *See* Pancreatic
secretory trypsin inhibitor.
- Severe combined immunodeficiency, stem
cell transplantation for, 533–534
- Sigmoidoscopy, in colorectal cancer,
151–152
- Silicone breast implants, breast
cytomorphology with, 691
- Simpson-Golabi-Behmel syndrome,
nephroblastoma in, 343, 346
- Sinus histiocytosis, with massive
lymphadenopathy, of breast,
cytomorphology of, 705–706
- Sirolimus, for islet cell transplantation,
549–550
- Skin grafts, **587–605**
availability of, 596
banking facilities for, 594–595
clinical uses of, 589–593
cryopreservation of, 600
disadvantages of, 593–594
donor of, 596–597
future of, 601–602
history of, 587–588
indications for, 483
infections from, 593–594
lyophilization of, 600
meshed, 590
minced for micrografts, 592–593
processing of, 598–599
products derived from, 601–602
recovery of, 597–598
refrigeration of, 599–600
rejection of, 594
rearming of, 601
storage of, 600
substitutes for, 602
testing of, 591–592
transport of, 601
- Smoking, familial pancreatic carcinoma
and, 123
- Snaring technique, in colorectal
polypectomy, 160
- Soft tissue grafts, **499–518**
alternatives to, 515
complaints about, 514
distribution of, 514
documentation of, 514
freeze drying of, 512–513
incoming, inspection of, 513–514
incorporation of, 501
indications for, 483, 504–505
mechanical properties of, 511–512
packaging of, 509
processing of, 504–505, 508–512
sterilization of, 510–511
storage of, 512–513
types of, 506–508
- Sotos syndrome, nephroblastoma in, 343,
346
- Specimen handling and reporting, for
renal cell carcinoma. *See* Renal cell
carcinoma(s), specimen handling and
reporting for.
- Spherulosis, collagenous, of breast,
cytomorphology of, 694
- Spindle cell carcinoma, renal, 393–398
- Spindle cell lesions, of breast,
cytomorphology of, 702–703
- SPINK 1. *See* Pancreatic secretory trypsin
inhibitor.
- Squamous cell carcinoma, of breast,
761–762
- SSIGN score, for renal cell carcinoma
prognosis, 455–456
- Staging
of colorectal cancer, 143–144,
154–158
of nephroblastoma, 346
of renal cell carcinoma, 420,
441–442
- Standards for Tissue Banking*, 595
- Standards of care, malpractice and,
778–779
- Stem cell transplantation, **519–540**
autologous, 519
cell harvesting for, 519
for acute lymphoblastic leukemia,
528–531
for acute myeloid leukemia,
522–524
for aplastic anemia, 524–526
for Hodgkin's disease, 531–532
for islet cell replacement, 552
for lymphoma, 531–532
for neuroblastoma, 526–528
for primary immune deficiencies,
533–534
indications for, 483
selection of cells for, 520–522

Stereotactic breast biopsy, 664–667
 core needle, 636–637
 fine needle aspiration, 636–637

Sterilization
 of bone grafts, 510–511
 of cardiovascular tissue grafts,
 576–577
 of soft tissue grafts, 510–511

STK11 gene mutations, pancreatic
 carcinoma risk in, 120

Stomach, cancer of. *See* Gastric cancer.

Stromal metanephric neoplasms, 384–387

Sulindac, for colorectal cancer prevention,
 159

Surface-enhanced laser desorption
 ionization mass spectrometry, in
 pancreatic cancer, 107

Synovial sarcoma, of kidney, 411–413

Systemic inflammatory response syndrome,
 in pancreatitis, 17

T

T lymphocytes, depletion of, for islet cell
 transplantation, 550–551

Tacrolimus, for islet cell transplantation,
 549–550

Telomerase
 in pancreatic cancer, 104–105
 in pancreatic cyst, 109–110

Telomeric repeat amplification protocol
 (TRAP), for pancreatic cancer, 105

Tendon grafts. *See* Soft tissue grafts.

Testis
 cancer treatment toxicity to,
 559–560
 tissue from, banking of, 560,
 562–563

TFE3 gene fusions, in renal carcinoma,
 364–370

TFE3 gene mutations, in renal cell
 carcinoma, 292–294

TFEB-Alpha gene fusion, in renal
 carcinoma, 370–375

TGFβRII gene mutations, in gastric cancer,
 209–210

Thoenes, Wolfgang Carl, renal tumor
 classification of, 237, 239

Thrombospondin 1, in gastric cancer, 211

Thyroid carcinoma, papillary, papillary
 renal cell carcinoma with, 272

Tissue banking
 accreditation in, 488–490, 492–493
 adverse reaction documentation in,
 494
 bone, 483, 487, 489, **499–518**
 cardiovascular, 483, 488, **571–585**
 compensation issues in, 477
 credentialing organizations for,
 490–493
 definition of tissue in, 489–490
 disease transmission in
 bone grafts, 489
 candidiasis, 488
 cardiovascular, 575
 cytomegalovirus, 593–594
 HIV infection, 487, 593, 609
 porcine endogenous retrovirus,
 552
 rabies, 489
 regulations on, 488–489
 skin grafts, 593–594
 distribution sources in, 481
 documentation in, 481, 494
 donor issues in. *See* Donors, tissue.
 eye, 483, **607–624**
 facility inspection, 493–495
 history of, 473–475
 immunology of, 475, 502–503, 579
 indications for use of, 483
 islet cells, **541–556**
 labeling in, 482, 484
 overview of, **473–486**
 recalls in, 487
 regulations for, **487–498**, 609–610
 reproductive, **557–569**
 skin, 483, **587–605**
 soft tissue, 483, **499–518**
 state licensing of, 495–496
 stem cells, 483, **519–540**
 storage in, 481
 surgeon responsibilities in, 481–484

Tissue inhibitor of metalloproteinase 3, in
 gastric cancer, 211–212

TNM classification
 of colorectal cancer, 144, 156–158
 of renal cell carcinoma, 441–442

Tolerance, induction of, in islet cell
 transplantation, 550–551

Tort law, 778

Training, for breast fine needle aspiration
 biopsy, 638–640

Transduction imbalance, in *Helicobacter*
pylori infections, 202–203

- Translocation renal neoplasms carcinomas, **363–378**
 familial clear cell renal cell carcinoma, 264
 Xp11.2, 292–294, 364–370
 primitive neuroectodermal tumor, 408–410
 synovial sarcoma, 411–413
- Transplantation
 limbal cell, 616–620
 myocardial cells, 580–581
 pancreas, versus islet cell transplantation, 541
 stem cell, 483, **519–540**
 tissue banking for. *See* Tissue banking; *specific tissues*.
- Transrectal ultrasonography, in colorectal cancer, 156–158
- TRAP (telomeric repeat amplification protocol), for pancreatic cancer, 105
- Triple test, in breast lesions, 634, 640–643, 650–651, 733
- Trisomy 7, in papillary renal cell carcinoma, 285
- Trisomy 17, in papillary renal cell carcinoma, 285
- Trisomy 18 (Edwards syndrome), nephroblastoma in, 343, 346
- Tropical calcific pancreatitis, 55, 66–67
- Trypsin
 activation of, 62–63
 early activation of, in pancreatitis, 5–9, 18
 inhibitors of. *See* Pancreatic secretory trypsin inhibitor.
- Trypsinogen
 action of, 62–63
 defects of, in hereditary pancreatitis, 39–46
 early activation of, in pancreatitis, 9–11, 18
- Trypsinogen activation peptide, in pancreatitis, 18, 30–31
- TSC gene mutations, in tuberous sclerosis, 271–272
- Tuberous sclerosis, molecular genetics of, 271–272
- Tubular adenoma, breast, cytomorphology of, 693, 698
- Tubular carcinoma, of breast, cytomorphology of, 736, 741–742
- Tubular pattern, of clear cell renal cell carcinoma, 309
- Tubulocystic carcinoma, 393–395, 398–402
- Tubulocystic pattern, of oncocytoma, 318
- Tumor necrosis factor- α
 in acute pancreatitis, 28–29
 in *Helicobacter pylori* infections, 201
- Tumor suppressor allelic loss analysis
 in pancreatic cancer, 105–107
 in pancreatic cyst, 109
-
- U**
- Ulcerative colitis, colorectal cancer in, 147
- Ultrasonography
 in breast needle biopsy, 663–664, 667–670
 in colorectal cancer, 156–158
- Umbilical cord blood, for stem cell transplantation, 520
- Uniform Anatomical Gift Act, 608
- “The Uniform Approach to Breast Fine Needle Aspiration Biopsy”
 recommendations
 for grading, 747–749
 for report terminology, 753, 756
 versus contemporary practices, **631–654**
 ancillary studies, 646–650
 credentialing, 638–640
 diagnostic terminology, 644–646
 indications, 632–637
 post-FNA, 650–651
 technique, 640–644
 training, 638–640
- Union Internationale Contre le Cancer/
 American Joint Committee on
 Cancer classification, of renal cell carcinoma, 434–440
- University of California–Los Angeles,
 renal cell carcinoma prognostic
 algorithm of, 453–455
-
- V**
- Vacuolating toxin A, of *Helicobacter pylori*,
 gastric cancer and, 200
- Valves, heart, prosthetic. *See*
 Cardiovascular tissue grafts.

Vena cava, inferior, renal cell carcinoma extension into, 445

VHL gene mutations
 in clear cell renal cell carcinoma, 306
 in von Hippel-Lindau disease, 261–263, 281–282

Videocapsule endoscopy, in colorectal cancer, 164–165

Vimentin
 in clear cell renal cell carcinoma, 253–255
 in primitive neuroectodermal tumor, 410
 in renal cell carcinoma, 248, 250, 253

Virchow renal tumor classification, 232

Virtual colonoscopy, in colorectal cancer, 163–164

Vitrification, in oocyte preservation, 562

von Hippel-Lindau disease, molecular genetics of, 259–263, 281–282

W

WAGR (Wilms' tumor, aniridia, genitourinary malformation, mental retardation), 342–344

Weichselbaum and Greenish, renal tumor classification of, 233

Wilms' tumor. *See* Nephroblastoma.

World Health Organization, renal tumor classification of, 235, 238, 242–244

Wounds, skin grafts for
 full-thickness, 589–590
 partial-thickness, 590–591

WT1 gene mutations
 nephroblastoma in, 342–344
 nephrogenic rests in, 353

WT2 gene mutations
 nephroblastoma in, 344–345
 nephrogenic rests in, 353

X

Xenotransplantation, of islet cells, 551–552

Xp11 translocation carcinoma, renal, 292–294, 363–370

Y

Y chromosome, loss of, in renal papillary adenoma, 286

Z

Zymogens, activation of, in pancreatitis, 5–9