

Contents

About the Companion Website xvii

Section 1 Anatomy of the Pancreas 1

- 1 Development of the Pancreas and Related Structures 3
Brian Lewis and Junhao Mao
- 2 Anatomy, Histology, and Fine Structure of the Pancreas 9
Daniel S. Longnecker and Elizabeth D. Thompson
- 3 Congenital and Inherited Anomalies of the Pancreas 23
Heiko Witt and Martin Zenker

Section 2 Physiology and Pathophysiology of Pancreatic Functions 33

- 4 Physiology of Acinar Cell Secretion 35
Ole H. Petersen
- 5 Physiology of Duct Cell Secretion 48
Wei-Yin Lin, Paramita Sarkar, and Shmuel Muallem
- 6 Physiology and Pathophysiology of Function of Sphincter of Oddi 56
Savio George Barreto and James Toouli
- 7 Neurohormonal and Hormonal Control of Pancreatic Secretion 65
Chung Owyang and Matthew J. DiMagno
- 8 Regulation of Pancreatic Protein Synthesis and Growth 75
Maria Dolors Sans and John A. Williams
- 9 Fibrogenesis in the Pancreas: The Role of Pancreatic Stellate Cells 86
Minoti V. Apte, Romano C. Pirola, and Jeremy S. Wilson
- 10 Pancreatic Endocrine–Exocrine Relationship 98
Kenichiro Furuyama and Yoshiya Kawaguchi

Section 3 Acute Pancreatitis 105

- 11 **Epidemiology and Etiology of Alcohol-Induced Pancreatitis** 107
Jeremy S. Wilson, Romano C. Pirola, and Minoti V. Apte
- 12 **Epidemiology and Etiology of Biliary Acute Pancreatitis** 119
Ippei Ikoma, Ko Tomishima, and Hiroyuki Isayama
- 13 **Genetic Factors in Acute Pancreatitis** 128
Mitchell L. Ramsey and Georgios I. Papachristou
- 14 **The Role of the Intestine and Mesenteric Lymph in the Development of Organ Dysfunction in Severe Acute Pancreatitis** 138
Alistair B.J. Escott, Anthony R.J. Phillips, and John A. Windsor
- 15 **The Role of Neurogenic Inflammation in Pancreatitis** 146
Metrah Mohammad Nader and Jami L. Saloman
- 16 **Molecular, Biochemical, and Metabolic Abnormalities of Acute Pancreatitis** 155
Ujjwal M. Mahajan, F. Ulrich Weiss, Markus M. Lerch, and Julia Mayerle
- 17 **Histopathology of Acute Pancreatitis** 164
Günter Klöppel
- 18 **Severity Classification of Acute Pancreatitis** 170
John A. Windsor
- 19 **Clinical Assessment and Biochemical Markers to Objectify Severity and Prognosis** 176
Bettina M. Rau and Claus Schäfer
- 20 **Acute Pancreatitis Associated with Congenital Anomalies** 185
Charlotte S. Austin, Christopher R. Schlieve, Andrew L. Warshaw, and Tracy C. Grikscheit
- 21 **Acute Pancreatitis in Children** 191
Mark E. Lowe and Véronique D. Morinville
- 22 **Acute Pancreatitis Associated with Metabolic, Infections and Drug-Related Diseases** 199
Ali A. Aghdassi, Mats L. Wiese, Quang Trung Tran, and Markus M. Lerch
- 23 **Radiologic Diagnosis and Staging of Severe Acute Pancreatitis** 208
Yoshihisa Tsuji
- 24 **Conservative Therapy of Acute Pancreatitis: Volume Substitution and Enteral and Parenteral Nutrition** 222
Steven M. Hadley, Jr. and Timothy B. Gardner
- 25 **ICU Treatment of Severe Acute Pancreatitis** 230
Scott R. Gunn and David C. Whitcomb
- 26 **Clinical Course and Medical Treatment of Acute Pancreatitis—Use of Antibiotics in Severe Acute Pancreatitis: Indications and Limitations** 238
Rainer Isenmann and Mathias Wittau

- 27 Indications for Interventional and Surgical Treatment of Necrotizing Pancreatitis 244**
Lily V. Saadat and Thomas E. Clancy
- 28 Management of Infected Necrosis: Step-Up Approach 254**
Hester C. Timmerhuis, Marc G. Besselink, and Hjalmar C. van Santvoort
- 29 Management of Infected Pancreatic Necroses: An Endoscopic Approach 260**
Todd H. Baron
- 30 Minimally Invasive Debridement and Lavage of Necrotizing Pancreatitis 266**
Kulbir Mann and Michael G.T. Raraty
- 31 Open Surgical Debridement of Necrotizing Pancreatitis: Late Postoperative Morbidity and Outcome 271**
Dongya Huang, Zipeng Lu, and Yi Miao
- 32 Endoscopic Treatment of Acute Biliary Pancreatitis 278**
Ichiro Yasuda, Tsuyoshi Mukai, and Toru Ito
- 33 Strategies for the Treatment of Pancreatic Pseudocysts and Walled-Off Necrosis After Acute Pancreatitis: Interventional Endoscopic Approaches 284**
Georg Beyer and Julia Mayerle
- 34 Pseudocysts and Walled-Off Necrosis After Acute Pancreatitis: Surgical Approach 288**
Naohiro Sata, Masaru Koizumi, and Alan Kawarai Lefor
- 35 Management of Fluid Collection in Acute Pancreatitis 294**
Georg Beyer, Simon Sirtl, Christoph Ammer-Herrmenau, and Albrecht Neesse
- 36 Management of Pancreatic Fistula in Acute Pancreatitis 300**
Marta Sandini, Thilo Hackert, and Markus W. Büchler
- 37 Long-Term Outcome After Acute Pancreatitis 306**
Christin Tjaden and Thilo Hackert
- Section 4 Chronic Pancreatitis 315**
- 38 Definition and Classification of Chronic Pancreatitis 317**
David C. Whitcomb
- 39 Molecular Understanding of Chronic Pancreatitis 326**
Bomi Lee, Monique T. Barakat, and Sohail Z. Husain
- 40 Natural History of Recurrent Acute and Chronic Pancreatitis 334**
Rohit Das, Jorge D. Machicado, and Dhiraj Yadav
- 41 Pediatric Recurrent Acute and Chronic Pancreatitis: Role of Pancreas Divisum 344**
Jiri Snajdauf, Michal Rygl, Barbora Kucerova, and Natalia Newland
- 42 Clinical and Laboratory Diagnosis of Chronic Pancreatitis 349**
Georg Beyer, Markus M. Lerch, and Julia Mayerle

- 43 Abdominal Imaging for the Diagnosis of Chronic Pancreatitis 357**
Atsushi Irisawa and Akira Yamamiya
- 44 Endoscopic Ultrasound for Diagnosis of Chronic Pancreatitis Versus Pancreatic Cancer 366**
J. Enrique Domínguez-Muñoz, Julio Iglesias-García, José Lariño-Noia, and Daniel de la Iglesia-García
- 45 Hereditary Pancreatitis and Complex Genetic Causes 375**
Celeste Shelton Ohlsen and David C. Whitcomb
- 46 Epidemiology and Pathophysiology of Tropical Chronic Pancreatitis 383**
Shailesh V. Shrikhande and Savio G. Barreto
- 47 CFTR-Associated Pancreatic Disease 390**
Chee Y. Ooi and Aliye Uc
- 48 Alcohol and Smoking in Chronic Pancreatitis 396**
Atsushi Masamune, Kazuhiro Kikuta, and Kiyoshi Kume
- 49 Idiopathic and Rare Causes of Chronic Pancreatitis 404**
Morihisa Hirota and Tooru Shimosegawa
- 50 Early Chronic Pancreatitis 412**
Kazuhiro Kikuta and Atsushi Masamune
- 51 Chronic Pancreatitis with Inflammatory Mass in the Pancreatic Head 418**
Ulrich F. Wellner, Kim C. Honselmann, and Tobias Keck
- 52 Structural Complications: Strictures, Stones, Pseudocysts, and Vascular Complications 424**
Xiaodong Tian, Xiaochao Guo, and Yinmo Yang
- 53 Nutritional Evaluation and Support: An Overview 430**
Sinead N. Duggan and Stephen J. O'Keefe
- 54 Exocrine Pancreatic Insufficiency 436**
Chris E. Forsmark
- 55 Bone Disease in Chronic Pancreatitis 442**
Sinead N. Duggan
- 56 Diabetes from Exocrine Pancreatic Disease 445**
Nao Fujimori, Tetsuhide Ito, and Yoshihiro Ogawa
- 57 Oxidative Stress and Antioxidants in Chronic Pancreatitis 451**
Soumya Jagannath Mahapatra and Pramod Kumar Garg
- 58 Pain Mechanisms in Chronic Pancreatitis 460**
Pierluigi Di Sebastiano, Fabio Francesco di Mola, Tommaso Grottola, and Rossana Percario
- 59 Pain Management in Chronic Pancreatitis 467**
Louise Kuhlmann, Søren S. Olesen, and Asbjørn M. Drewes

60	Adjunctive Therapy in Chronic Pancreatitis	474
	<i>Anna Evans Phillips</i>	
61	Pancreatic Cancer Risks in Chronic Pancreatitis	480
	<i>Patrick Maisonneuve and Albert B. Lowenfels</i>	
62	Evidence of Endoscopic and Interventional Treatment of Chronic Pancreatitis and Pseudocysts	486
	<i>Jörg Schirra, Simon Sirtl MD, Markus M. Lerch, and Julia Mayerle</i>	
63	Major Pancreatic Resection for Chronic Pancreatitis: Indication, Goals, and Limitations	496
	<i>Faik G. Uzunoglu and Jakob R. Izbicki</i>	
64	Pancreatic Drainage Procedures: Techniques and Results	501
	<i>Ulrich F. Wellner, Dirk Bausch, and Tobias Keck</i>	
65	Duodenum-Preserving Pancreatic Head Resections for Chronic Pancreatitis: Techniques and Results	506
	<i>Hans G. Beger, Bertram Poch, Yang Yinmo, and Waldemar Uhl</i>	
66	Total Pancreatectomy with Islet Autotransplant	515
	<i>Greg Beilman, Zachary Bergman, and Melena Bellin</i>	
67	Minimally Invasive Surgical Management of Chronic Pancreatitis	523
	<i>Gilbert Z. Murimwa, Herbert J. Zeh III, and Matthew R. Porembka</i>	
	Section 5 Autoimmune Pancreatitis	533
68	Epidemiology of Autoimmune Pancreatitis	535
	<i>Terumi Kamisawa</i>	
69	Molecular Immunology and Pathogenesis of Autoimmune Pancreatitis	540
	<i>Yoh Zen</i>	
70	Clinical Manifestation of Type 1 Autoimmune Pancreatitis	546
	<i>Tooru Shimosegawa</i>	
71	Clinical Manifestation of Type 2 Autoimmune Pancreatitis	554
	<i>Nicolò de Pretis and Luca Frulloni</i>	
72	Clinical Diagnostic Criteria for Autoimmune Pancreatitis	561
	<i>Tooru Shimosegawa</i>	
73	Laboratory Diagnosis of Autoimmune Pancreatitis	568
	<i>J-Matthias Löhr and Miroslav Vujasinovic</i>	
74	What is the Evidence Measuring Immune Markers	573
	<i>Shigeyuki Kawa, Takayuki Watanabe, and Norihiro Ashihara</i>	
75	Autoimmune Pancreatitis and IgG4-Related Disease	579
	<i>Kazuichi Okazaki, Tsukasa Ikeura, and Kazushige Uchida</i>	
76	Imaging Diagnosis of Autoimmune Pancreatitis	595
	<i>Kazuichi Okazaki, Makoto Takaoka, Tsukasa Ikeura, and Kazushige Uchida</i>	

77	Medical Management of Autoimmune Pancreatitis	600
	<i>Shounak Majumder and Suresh T. Chari</i>	
78	Management of Intractable Autoimmune Pancreatitis	605
	<i>Shounak Majumder and Suresh T. Chari</i>	
79	Long-Term Outcome After Treatment of Autoimmune Pancreatitis	609
	<i>Luca Frulloni and Nicolò de Pretis</i>	
 Section 6 Neoplastic Tumors of the Exocrine Tissue: Benign Cystic Neoplasms of the Pancreas 615		
80	Epidemiology of Cystic Neoplasms of the Pancreas	617
	<i>Shounak Majumder and Suresh T. Chari</i>	
81	Histologic Classification and Staging of Cystic Neoplasms	623
	<i>Noriyoshi Fukushima and Giuseppe Zamboni</i>	
82	Molecular Mechanisms of Cystic Neoplasia-	630
	<i>Nickolas Papadopoulos and Ralph H. Hruban</i>	
83	Clinical Presentation of Pancreatic Cystic Neoplasms	638
	<i>Masao Tanaka</i>	
84	Evaluation of Cystic Lesions Using EUS, MRI, and CT	642
	<i>Anne Marie Lennon and Atif Zaheer</i>	
85	Cytologic Evaluation of Cystic Neoplasms: The Role of Liquid Biopsy	652
	<i>Abdulwahab Ewaz and Michelle D. Reid</i>	
86	Natural History of Cystic Neoplasms: IPMN, MCN, SCN, and SPN	666
	<i>Rosa Klotz, Thilo Hackert, and Markus W. Büchler</i>	
87	Surveillance or Surgical Treatment in Asymptomatic Cystic Neoplasm	674
	<i>Klaus Sahora and Carlos Fernández-del Castillo</i>	
88	Artificial Intelligence in the Detection and Surveillance of Cystic Neoplasms	680
	<i>Linda C. Chu and Elliot K. Fishman</i>	
89	Oncologic Resection of IPMN and MCN: Open Approach—Results	688
	<i>Marco Del Chiaro, Michael J. Kirsch, and Richard D. Schulick</i>	
90	Surgical Treatment of Cystic Neoplasms: Laparoscopic and Robotic Approach—Results	693
	<i>Benedict Kinny-Köster, Christopher L. Wolfgang, Markus W. Büchler, and Thilo Hackert</i>	
91	Robotic-assisted Resection of Cystic Neoplasms	700
	<i>Kimberly Kopecky and Jin He</i>	
92	Duodenum-preserving Pancreatic Head Resection for Cystic Neoplasms of the Pancreatic Head: Indications and Limitations	709
	<i>Hans G. Beger and Bertram Poch</i>	
93	Pancreatic Middle Segment Resection of Cystic Neoplasms: Indications and Limitations	715
	<i>Calogero Iacono and Mario De Bellis</i>	

- 94 **Tumor Enucleation for Cystic Neoplasms of the Pancreas: Indications and Limitations** 723
Rachel C. Kim, C. Max Schmidt, and Henry A. Pitt
- 95 **Duodenum-preserving Pancreatic Head Resection and Local Extirpation of SPTP in Children and Adolescents: Indications and long-term results** 732
Jiri Snajdauf, Michal Rygl, Barbora Kucerova, and Natalia Newland
- 96 **Management of Recurrence of Cystic Neoplasms** 737
Anna Nießen, Christopher L. Wolfgang, Thilo Hackert, and Markus W. Büchler
- 97 **Long-term Outcome after Observation and Surgical Treatment of Cystic Neoplasms: What is the Evidence?** 744
Roberto Salvia, Giovanni Marchegiani, Giampaolo Perri, and Claudio Bassi
-
- Section 7 Neoplastic Tumors of the Endocrine Pancreas: Neuroendocrine Tumors of the Pancreas** 751
- 98 **Epidemiology and Classification of Neuroendocrine Tumors of the Pancreas** 753
J.J. Mukherjee, K.O. Lee, and Gregory Kaltsas
- 99 **Pathology of Neuroendocrine Neoplasms** 763
Atsuko Kasajima and Hironobu Sasano
- 100 **Molecular Genetics of Neuroendocrine Tumors** 771
Nickolas Papadopoulos and Ralph H. Hruban
- 101 **What is the Origin of Pancreatic Endocrine Tumors?** 781
Aurel Perren, Iacovos P. Michael, and Ilaria Marinoni
- 102 **Clinical Manifestation of Endocrine Tumors of the Pancreas** 791
Tetsuhide Ito, Keijiro Ueda, Nao Fujimori, and Robert T. Jensen
- 103 **Evidence of Hormonal, Laboratory, Biochemical, and Instrumental Diagnostics of Neuroendocrine Tumors of the Pancreas** 799
K.O. Lee, Gregory Kaltsas, and J.J. Mukherjee
- 104 **Pancreatic Neuroendocrine Tumors in Multiple Neoplasia Syndromes** 808
Anja Rinke and Thomas Matthias Gress
- 105 **Nonfunctioning Pancreatic Neuroendocrine Neoplasms: Diagnosis and Management Principles** 815
Takao Ohtsuka, Yuto Hozaka, and Hiroshi Kurahara
- 106 **Medical and Nucleotide Treatment of Neuroendocrine Tumors of the Pancreas** 820
Marina Tsoi and Gregory Kaltsas
- 107 **Interventional Radiology in the Treatment of Pancreatic Neuroendocrine Tumors** 829
Tetsuya Idichi, Hiroshi Kurahara, and Takao Ohtsuka
- 108 **Enucleation of Benign, Neuroendocrine Tumors of the Pancreas** 833
Frank Weber, Andreas Machens, and Henning Dralle
- 109 **Duodenum-Preserving Pancreatic Head Resection or Local Extirpation of Neuroendocrine Tumors of the Pancreas Larger than 2 cm** 841
Takashi Hatori

- 110 Individualized Surgery for Nonfunctional Pancreatic Neuroendocrine Tumors (NF-pNET) <2 cm: Indication, Surgical Principles, and Long-term Outcome 849**
Charles de Ponthaud, Julien de Martino, and Sébastien Gaujoux
- 111 Surgical Treatment of Endocrine Tumors: Major Oncologic Resection 857**
Frank Weber, Andreas Machens, and Henning Dralle
- 112 The Management of Insulinoma 865**
Keiji Ueda, Nao Fujimori, Robert T. Jensen, and Tetsuhide Ito
- 113 Evidence of Medical and Surgical Treatment of Gastrinoma 872**
Ryuichiro Doi
- 114 Rare Neuroendocrine Tumors of Pancreas: Management and Evidence of Surgical Treatment 876**
Ryuichiro Doi
- 115 Treatment of Neuroendocrine Neoplasia of the Pancreas and Biliary Tract 882**
Andrea Frilling, Ashley K. Clift, and Vito Cicinnati
- 116 Survival after Treatment of Endocrine Tumors 891**
Zhe Cao and Taiping Zhang
- Section 8 Neoplastic Tumors of Exocrine Tissue: Pancreatic Cancer 897**
- 117 Epidemiology of Pancreatic Cancer 899**
Evelina Mocci and Alison P. Klein
- 118 Smoking, a Risk for Pancreatic Cancer: Experimental and Clinical Data 905**
Uwe A. Wittel, Bradley R. Hall, and Surinder K. Batra
- 119 Molecular Understanding of the Development of Ductal Pancreatic Cancer 912**
Jae W. Lee, Ralph H. Hruban, and Laura D. Wood
- 120 From Tissue Turnover to the Cell of Origin of Pancreatic Cancer: An Updated View 921**
Bo Kong, Eva Thoma, and Christoph W. Michalski
- 121 Microbiome of Pancreatic Cancer: Involvement in Cancer Development and Chemo-/Immunotherapy 928**
Xianjun Yu
- 122 Molecular Subtypes and Clinical Applications 934**
Maarten F. Bijlsma and Peter Bailey
- 123 Tumor Microenvironment: Immune Cells and Immunosuppressive Functions of Carcinoma-associated Fibroblasts and Macrophages 942**
Tony Pang, Zhihong Xu, Chamini Perera, and Minoti V. Apte
- 124 Familial Pancreatic Cancer 951**
Alison P. Klein
- 125 Pathology of Exocrine Pancreatic Tumors 957**
Meredith E. Pittman and Ralph H. Hruban

- 126 Pancreatic Cancer: Precancerous Lesions 969**
Michael J. Pflüger, Michaël Noë, and Lodewijk A.A. Brosens
- 127 Clinical History and Risk Factors of Pancreatic Cancer 982**
Norbert Hüser, Volker Aßfalg, and Helmut Friess
- 128 The Role of Endoscopic Ultrasonography in the Diagnosis and Differential Diagnosis of Neoplastic Lesions 989**
Yoshiki Hirooka, Senju Hashimoto, and Eizaburo Ohno
- 129 Radiologic Diagnosis of Pancreatic Cancer: CT, MRI 997**
Hannah S. Recht and Elliot K. Fishman
- 130 Screening of Hereditary Pancreatic Cancer 1012**
Michael Goggins
- 131 The Role of PET in Diagnosis of Pancreatic Cancer and Cancer Recurrence 1021**
Norbert Hüser, Volker Aßfalg, Isabel Rauscher, and Helmut Friess
- 132 Tumor Markers in Pancreatic Malignancies 1028**
Shin Hamada and Atsushi Masamune
- 133 The Role of Laparoscopy and Peritoneal Cytology in the Management of Pancreatic Cancer 1033**
Yosuke Kasai, Kyoichi Takaori, and Etsuro Hatano
- 134 Clinical Assessment and Staging of Advanced Pancreatic Cancer 1037**
James M. Lindberg, Giles F. Whalen, and Jennifer LaFemina
- 135 Pancreatic Cancer: Indications for Resection 1047**
Akimasa Nakao and Suguru Yamada
- 136 Pancreatoduodenectomy for Pancreatic Cancer: Short- and Long-term Outcome after Kausch-Whipple and Pylorus-preserving Pancreatoduodenectomy 1055**
Benedict Kinny-Köster, John L. Cameron, and Jin He
- 137 Left Pancreatectomy for Body and Tail Cancer 1063**
Jony van Hilst, Mohammad Abu Hilal, and Marc G Besselink
- 138 Total Pancreatectomy: Indications and Limitations 1071**
Seiko Hirono and Hiroki Yamaue
- 139 Minimally Invasive Resection for Pancreatic Cancer 1078**
Patricio M. Polanco, Imad Radi, and Herbert J. Zeh III
- 140 Robotic Resection for Pancreatic Cancer 1093**
Renyi Qin
- 141 Extended Radical Surgery for Pancreatic Cancer 1099**
Thilo Hackert, Anna Nießen, and Markus W. Büchler
- 142 Palliative Pancreatic Resection: Is It Justified? 1108**
Kira C. Steinkraus, Max Heckler, Christoph W. Michalski, and Felix J. Hüttner
- 143 Outcome of Patients after R0 Resection for Locally Advanced Pancreatic Cancer Combined with Hepatic Metastasectomy: Indications and Limitations 1113**
Tingbo Liang

- 144 Bypass Surgery for Advanced Pancreatic Cancer 1117**
Eva Thoma, Thilo Hackert, Christoph W. Michalski, and Felix J. Hüttner
- 145 Endoscopic and Interventional Palliation of Pancreatic Cancer 1122**
Kazumasa Nagai and Takao Itoi
- 146 Neoadjuvant Treatment of Pancreatic Cancer: Evidence for Treatment Effect 1131**
Robert A. Wolff
- 147 Locally Advanced Pancreatic Cancer: Does the Addition of Stereotactic Body Radiation Therapy to Neoadjuvant Chemotherapy Lead to a Significant Survival Improvement after R0 Resection? 1141**
Marco Del Chiaro, Michael J. Kirsch, and Richard D. Schulick
- 148 Adjuvant Chemotherapy in Pancreatic Cancer: First Line and Second Line Treatment—Benefits of Survival 1143**
Kulbir Mann, Robert P. Jones, Paula Ghaneh, and John P. Neoptolemos
- 149 Role of Radiation Therapy for Pancreatic Cancer 1153**
Baho U. Sidiqi, Abhinav V. Reddy, Joseph M. Herman, and Amol K. Narang
- 150 Immunotherapy for Pancreatic Cancer: Checkpoint Blockade and Vaccine Therapy 1164**
Arsen Osipov, Adrian G. Murphy, and Lei Zheng
- 151 Targeted Therapies for Pancreatic Cancer 1180**
Anirban Maitra
- 152 Precision Cancer Medicine 1188**
Grace Oh, Surajit Dhara, and Diane Simeone
- 153 Palliative Chemotherapy for Advanced Pancreatic Cancer: Treatment Modalities, Side-effects, and Benefits of Survival 1196**
Christoph Springfield and Thomas Seufferlein
- 154 Management of Pain in Pancreatic Cancer 1201**
Annie W. Hsu, Ayodeji Omosule, and Michael Erdek
- 155 Management of Cancer Recurrence 1208**
Oliver Strobel, Martin Loos, and Markus W. Büchler
- 156 Survival and Late Morbidity after Resection of Pancreatic Cancer 1218**
Avinoam Nevler and Charles J. Yeo
- Section 9 Periampullary Cancers and Tumors Other Than Pancreatic Cancer 1233**
- 157 Periampullary Tumors: Clinical Presentation and Diagnostic Strategies 1235**
Jon M. Harrison and Keith D. Lillemoe
- 158 Histology and Genetics of Cancer of the Papilla, Distal Common Bile Duct, and Duodenum 1242**
Yue Xue, Michelle D. Reid, and Volkan Adsay
- 159 Adenoma and Adenocarcinoma of the Ampulla of Vater: Diagnosis and Management 1254**
Sahin Coban, Omer Basar, and William R. Brugge

160	Endoscopic Treatment of Adenomas of the Ampulla of Vater: Techniques, Results, Benefits, and Limitations	1264
	<i>Natsuyo Yamamoto and Hiroyuki Isayama</i>	
161	Surgical Treatment of Papillary and Ampullary Tumors: Management and Long-term Results	1272
	<i>Norbert Hüser, Volker Aßfalg, and Helmut Friess</i>	
162	Surgical Treatment of Duodenal Cancer	1281
	<i>Fuyuhiko Motoi</i>	
163	Surgical Treatment of Distal Cholangiocarcinoma	1284
	<i>Shunsuke Onoe, Yukihiro Yokoyama, and Tomoki Ebata</i>	
164	Adjuvant and Palliative Chemotherapy of Periapillary Cancers	1291
	<i>Arachchige D.N.R. Ponweera, Paula Ghaneh, and John P. Neoptolemos</i>	
165	Long-term Survival After Resection of Periapillary Cancer	1299
	<i>Hideyuki Yoshitomi, Masayuki Ohtsuka, and Masaru Miyazaki</i>	
 Section 10 Transplantation of the Pancreas 1309		
166	Transplantation of Pancreatic Islets	1311
	<i>Joseph Sushil Rao, Melena D. Bellin, and Bernhard J. Hering</i>	
167	Transplantation of the Pancreas	1323
	<i>Rainer W.G. Gruessner and Angelika C. Gruessner</i>	
	Index	1333