The following 8 review articles derive from case presentations by University of Michigan Pathology faculty at our annual New Frontiers in Pathology seminar. This 3-day seminar was held in Ann Arbor, Michigan, on October 22–24, 2015. In addition to case presentations and interactive breakout sessions presented by our own faculty, an invited keynote speaker and 2 plenary lecturers rounded out the curriculum.

Aaron M. Udager, MD, PhD, and Rohit Mehra, MD, provide a timely, comprehensive, yet concise review and update of the classification and diagnostic criteria of the ever-expanding group of renal cell carcinomas. Dividing their outline into tumors with clear cytoplasm, papillary architecture, or eosinophilic (oncocytic) cytoplasm, the authors highlight key morphologic, immunohistochemical, and molecular features that distinguish them, and provide a practical framework for approaching differential diagnoses.

Nilam Virani, MD, Judy Pang, MD, and Madelyn Lew, MD, discuss the cytologic features of spindle cell lesions commonly found in the gastrointestinal tract. The authors describe and illustrate the morphologic features of key lesions and emphasize the importance of ancillary studies for distinguishing these morphologically overlapping tumors.

Jaya Ruth Asirvatham, MD, Maria Monica Garcia Falcone, MD, and Celina G. Kleer, MD, report the morphologic and diagnostic features of atypical apocrine adenosis, an uncommon yet very challenging breast lesion. The discussion expands to include other apocrine lesions including apocrine ductal carcinoma in situ (DCIS), apocrine carcinoma, and pleomorphic lobular carcinoma in situ. The authors highlight important diagnostic criteria and pitfalls, as well as clinical implications for management.

Julie Jorns, MD, provides a very practical guide to diagnosing papillary breast lesions, lesions that are very challenging for the pathologist, especially with limited sampling as in a core biopsy. She highlights essential morphologic and immunohistochemical features of intraductal papilloma (IDP) (central and peripheral), atypical IDP, IDP with DCIS, papillary DCIS, papillary carcinoma, and solid papillary carcinoma.

Daniel F. Boyer, MD, PhD, provides a logical approach for evaluating peripheral blood and bone marrow for persistent eosinophilia, a challenging task in light of the myriad etiologies, both reactive and neoplastic conditions, and lack of specificity. The purpose of this review is to provide an overview of the differential diagnosis for eosinophilia, to recommend specific tests for the pathologist evaluating blood and bone marrow samples, and to emphasize 2 important causes of eosinophilia that require specific ancillary tests for diagnosis: myeloproliferative neoplasm with PDGFRA rearrangement and lymphocyte-variant hypereosinophilic syndrome.

Sarah L. Rooney, MD, and Jiaqi Shi, MD, PhD, provide an update on intraductal tubulopapillary neoplasm (ITPN) of the pancreas from the pathologist’s perspective. This rare entity was only recently described and classified by the World Health Organization in 2010. Their article details definitional, histopathologic, immunohistochemical, and molecular features used to distinguish ITPN from its differential diagnoses, especially intraductal mucinous pancreatic neoplasm.

Charles M. Harmon, MD, and Lauren B. Smith, MD, describe the clinicopathologic, immunohistochemical, and cytogenetic/molecular finding of plasmablastic lymphoma, an uncommon tumor with distinctive clinical features, especially its association with immunodeficiency status. This comprehensive yet concise review emphasizes the differential diagnosis of hematolymphoid neoplasms with immunoblastic morphology and/or evidence of plasmacytic differentiation.

Eun-Young Karen Choi, MD, and Henry D. Appelman, MD, present a beautifully written and illustrated article highlighting the historical evolution of serrated colorectal polyps. Distinguishing between hyperplastic polypl, sessile serrated adenoma, and traditional serrated adenoma is not only very challenging, the distinctions have important clinical implications. The historical perspective makes this an interesting read, while histologic images nicely depict the key diagnostic features.