HoxB13 is a transcription factor defining posterior endodermal derivatives, including prostate and rectum. While it is used as a marker of prostate cancer, it has not been studied systematically in neuroendocrine neoplasms. Thus, Soukup et al. performed HoxB13 immunohistochemistry in tissue microarrays and the whole sections of 232 neuroendocrine neoplasms. These included 34 paragangliomas (PGs), 20 cauda equina neuroendocrine tumors (CENETs), 123 well-differentiated neuroendocrine tumors (WDNETs), and 55 neuroendocrine carcinomas (NECs). WDNETs were additionally analyzed with SATB2 and colorectal WDNETs with CDX2 and serotonin immunohistochemistry. In total, HoxB13 immunoreactivity was observed in 95% (19/20) CENETs, 10.6% (13/123) WDNETs, and 12.9% (7/54) NECs. No PGs were positive. Large intestine WDNETs expressed HoxB13 in 68.4% (13/19); five negative tumors originated in the cecum and one in the rectum. In rectum, 92.9% (13/14) WDNETs expressed HoxB13. HoxB13 was 92.9% sensitive and 100% specific, showing a 100% positive predictive value for the rectal origin of WDNET. In NECs, HoxB13 was positive in 15.4% (2/13) GIT tumors and 80% (4/5) prostatic NECs, but in none of the urinary bladder NECs (0/8). SATB2 was positive in 17.1% (21/123) WDNETs, including 78.9% (15/19) of colorectal WDNETs, 71.4% (5/7) appendiceal WDNETs, and 2.9% (1/34) small intestine WDNETs. All 4 SATB2-negative large bowel tumors originated in the cecum. When both markers combined, HoxB13+/SATB2+ immune profile was seen exclusively in rectal WDNETs (positive predictive value 100%), while HoxB13-/SATB2+ immune profile was highly suggestive of the appendiceal origin (positive predictive value 71.4%). Therefore, HoxB13 can be useful as an immunohistochemical marker of rectal WDNETs and prostatic NECs [1)].

1)
Soukup J, Manethova M, Stejskal V, Hornychova H, Cesak T, Netuka D, Ryska A, Gabalec F. Immunoreactivity of HOXB13 in Neuroendocrine Neoplasms Is a Sensitive and Specific Marker of Rectal Well-Differentiated Neuroendocrine Tumors. Endocr Pathol. 2023 Aug 8. doi: 10.1007/s12022-023-09779-9. Epub ahead of print. PMID: 37552455.