

Table.1 Summary results of HP-related gene markers

Year	Genes	Title	Journal	DOI
2019	ATP4A ADAM17 $\alpha 5\beta 1$ IL-1 β	Gastric Parietal Cell Physiology and Helicobacter pylori–Induced Disease	Gastroenterology	10.1053/j.gastro.2019.02.036
2021	HPSE(heparanase)	Helicobacter pylori-Induced Heparanase Promotes Colonization and Gastritis	Frontiers in immunology	10.3389/fimmu.2021.675747
2019	TRPML1	VacA generates a protective intracellular reservoir for Helicobacter pylori that is eliminated by activation of the lysosomal calcium channel TRPML1	Nature microbiology	10.1038/s41564-019-0441-6
2021	CD44 LC3	Autophagy induced by Helicobacter pylori infection is necessary for gastric cancer stem cell emergence	Gastric cancer	10.1007/s10120-020-01118-9
2021	PRTG(Protogenin)	The novel ZEB1-upregulated protein PRTG induced by Helicobacter pylori infection promotes gastric carcinogenesis through the cGMP/PKG signaling pathway	Cell death & disease	10.1038/s41419-021-03440-1
2020	SMOX(spermine oxidase)	Spermine oxidase mediates Helicobacter pylori-induced gastric inflammation, DNA damage, and carcinogenic signaling	Oncogene	10.1038/s41388-020-1304-6
2020	USF1	USF1 defect drives p53 degradation during Helicobacter pylori infection and accelerates gastric carcinogenesis	Gut	10.1136/gutjnl-2019-318640
2019	MMP-10	Helicobacter pylori-induced matrix metalloproteinase-10 promotes gastric bacterial colonization and gastritis	Science advances	10.1126/sciadv.aau6547
2019	HIF-1 α	The Helicobacter pylori Urease Virulence Factor Is Required for the Induction of	Cancers	10.3390/cancers11060799

		Hypoxia-Induced Factor-1 α in Gastric Cells		
2019	TRAF1 TRAF2	Helicobacter pylori Inhibitory Effect of β -Carotene on -Induced TRAF Expression and Hyper-Proliferation in Gastric Epithelial Cells	Antioxidants (Basel, Switzerland)	10.3390/antiox8120637
2019	LC3	A Novel Role for Helicobacter pylori Gamma-Glutamyltranspeptidase in Regulating Autophagy and Bacterial Internalization in Human Gastric Cells	Cancers	10.3390/cancers11060801
2020	GKN1	Women with chronic follicular gastritis positive for Helicobacter pylori express lower levels of GKN1	Gastric cancer	10.1007/s10120-020-01049-5
2020	MCOLN1	MCOLN1/TRPML1 inhibition - a novel strategy used by Helicobacter pylori to escape autophagic killing and antibiotic eradication therapy in vivo	Autophagy	10.1080/15548627.2019.1677322
2020	CTTN(Cortactin)	Cortactin: A Major Cellular Target of the Gastric Carcinogen Helicobacter pylori	Cancers	10.3390/cancers12010159
2021	MRCK β	Helicobacter pylori-induced gastric cancer is orchestrated by MRCK β -mediated Siah2 phosphorylation	Journal of biomedical science	10.1186/s12929-021-00710-0
2019	PD-L1(CD274)	Increased Programmed Death-Ligand 1 is an Early Epithelial Cell Response to Helicobacter pylori Infection	PLoS pathogens	10.1371/journal.ppat.1007468
2019	CAPZA1	CAPZA1 determines the risk of gastric carcinogenesis by inhibiting Helicobacter pylori CagA-degraded autophagy	Autophagy	10.1080/15548627.2018.1515530
2019	PDIA3	Vitamin D3 activates the autolysosomal degradation function against Helicobacter pylori through the PDIA3 receptor in gastric epithelial cells	Autophagy	10.1080/15548627.2018.1557835
2020	HIF-1 α	Helicobacter pylori The Degree	Oxidative	10.1155/2020/5281795

		of Infection Affects the State of Macrophage Polarization through Crosstalk between ROS and HIF-1	medicine and cellular longevity	
2019	IL-17RB	Decreased IL-17RB expression impairs CD11bCD11c myeloid cell accumulation in gastric mucosa and host defense during the early-phase of Helicobacter pylori infection	Cell death & disease	10.1038/s41419-019-1312-z
2019	TRAP1	Helicobacter pylori-downregulated tumor necrosis factor receptor-associated protein 1 mediates apoptosis of human gastric epithelial cells	Journal of cellular physiology	10.1002/jcp.28223
2020	ETS1	Expression of ETS1 in gastric epithelial cells positively regulate inflammatory response in Helicobacter pylori-associated gastritis		10.1038/s41419-020-2705-8
2020	TLR5	Toll-like Receptor 5 Activation by the CagY Repeat Domains of Helicobacter pylori	Cell reports	10.1016/j.celrep.2020.108159
2020	Nurr1	Orphan nuclear receptor Nurr1 promotes Helicobacter pylori-associated gastric carcinogenesis by directly enhancing CDK4 expression	EBioMedicine	10.1016/j.ebiom.2020.102672
2021	CLEC4E	Helicobacter pylori metabolites exacerbate gastritis through C-type lectin receptors	The Journal of experimental medicine	10.1084/jem.20200815
2020	LATS2	The Hippo Kinase LATS2 Controls Helicobacter pylori-Induced Epithelial-Mesenchymal Transition and Intestinal Metaplasia in Gastric Mucosa	Cellular and molecular gastroenterology and hepatology	10.1016/j.jcmgh.2019.10.007
2020	ARRDC3	Arrestin domain containing 3 promotes Helicobacter pylori-associated gastritis by regulating protease-activated receptor 1	JCI insight	10.1172/jci.insight.135849
2020	ADM	Helicobacter pylori-induced adrenomedullin modulates IFN- γ -producing T-cell	Cell death & disease	10.1038/s41419-020-2391-6

		responses and contributes to gastritis		
2019	RACK1	Downregulation of tumor suppressor RACK1 by Helicobacter pylori infection promotes gastric carcinogenesis through the integrin β -1/NF- κ B signaling pathway	Cancer letters	10.1016/j.canlet.2019.02.039
2020	PUMA	PUMA-mediated epithelial cell apoptosis promotes Helicobacter pylori infection-mediated gastritis	Cell death & disease	10.1038/s41419-020-2339-x
2020	NLRC5	Innate Immune Molecule NLRC5 Protects Mice From Helicobacter-induced Formation of Gastric Lymphoid Tissue	Gastroenterology	10.1053/j.gastro.2020.03.009
2021	CXCR2	Inflammation-Associated Senescence Promotes Helicobacter pylori-Induced Atrophic Gastritis	Cellular and molecular gastroenterology and hepatology	10.1016/j.jcmgh.2020.10.015
2020	CEACAM1 CEACAM3 CEACAM6	Helicobacter pyloriThe HopQ-CEACAM Interaction Controls CagA Translocation, Phosphorylation, and Phagocytosis of in Neutrophils	mBio	10.1128/mBio.03256-19