胃肠道中的炎症小体:感染,癌症和肠道微生物群稳态

Inflammasomes in the gastrointestinal tract: infection, cancer and gut microbiota homeostasis [2]

Cası	NLRP3 inflammasome NLRP3 ASC	Non-canonical inflammasome Caspase 4 Caspase 5 Caspase 11	NAIP-NLRC4 inflammasome NAIP-NLRC4	AIM2 inflammasome	Pyrin inflammasome Pyrin
Activators	PAMPs and DAMPs, including microbial toxins, RNA, DNA–RNA hybrids, mitochondrial DNA, ATP, K+ efflux and ROS	LPS, lipid A and host oxidized phospholipids	Bacterial flagellin and the T3SS (needle and inner rod proteins)	Microbial and mammalian DNA	Toxin-induced RHO GTPase modification
Other pathogens	Virus • Adenovirus • Enterovirus Protozoan • Entamoeba histolytica Helminth • Schistosoma mansoni	Not known	Not known	Virus • Adenovirus	Not known
Bacteria	Campylobacter jejuni Clostridium difficile Helicobacter pylori Listeria monocytogenes Proteus mirabilis Staphylococcus aureus Yersinia enterocolitica	Citrobacter rodentium Escherichia coli Salmonella enterica subsp. enterica serovar Typhimurium Shigella flexneri Vibrio cholerae	Citrobacter rodentium Escherichia coli Listeria monocytogenes Salmonella enterica subsp. enterica serovar Typhimurium Shigella flexneri	Listeria monocytogenes	Clostridium difficile

炎症小体识别胃肠道的细菌,病毒,原生动物(protozoa)和蠕虫(helminths)

病原体携带大量病原体相关分子模式 (PAMPs),这些 PAMPs 能够直接结合并且激活炎症小体感受器或诱导能被炎症小体感受器感知的细胞生理变化¹。病原体也会对宿主细胞造成严重损害,从而诱导释放能够激活炎症小体的的危险相关分子模式(DAMPs)²。

TIPs:

AIM2 (absent in melanoma 2): 黑色素瘤缺乏因子2;

ASC (apoptosis-associated speck-like

protein containing a caspase activation and recruitment domain (CARD)

):含有半胱天冬酶激活和募集结构域(CARD)的凋亡相关斑点样蛋白质;

LPS (lipopolysaccharide): 脂多糖;

NAIP (neuronal apoptosis inhibitory protein) : 神经细胞凋亡抑制蛋白;

NLRC4: nucleotide-binding domain, leucine-rich repeat-containing protein (NLR) family CARD domain-containing protein

4NLRP3: NACHT, LRR and PYD domains-containing protein 3

ROS(reactive oxygen species): 活性氧;

T3SS(type 3 secretion system): 3 型分泌系统。

- 1. Man, S. M. & Kanneganti, T. D. Converging roles of caspases in inflammasome activation, cell death and innate immunity. Nat. Rev. Immunol. 16, 7–21 (2016). 5
- 2. Latz, E., Xiao, T. S. & Stutz, A. Activation and regulation of the inflammasomes. Nat. Rev. Immunol. 13, 397–411 (2013). 15