

# Microbiota-Derived Histamine - Relevance to Mucosal Immune Homeostasis

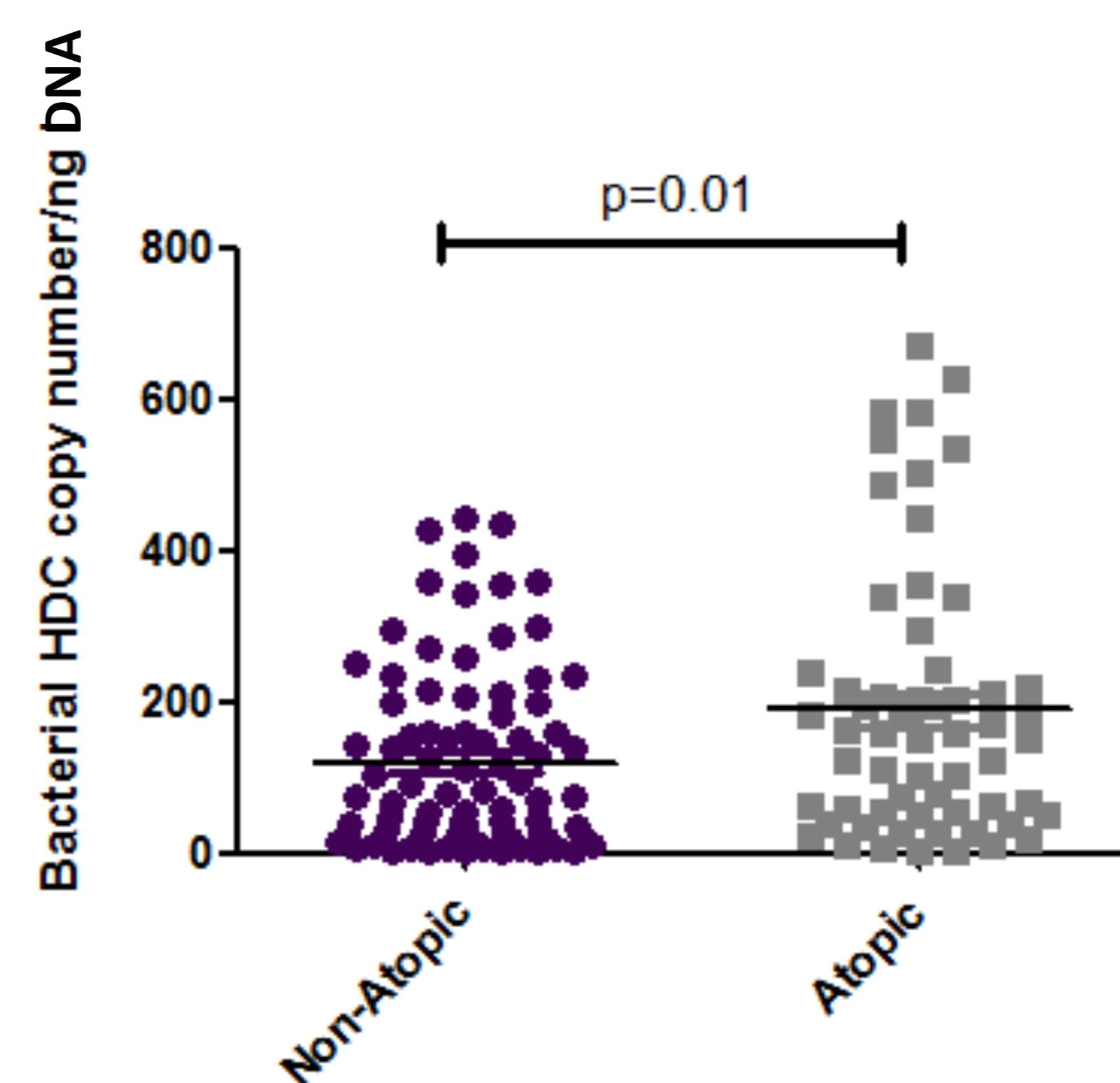
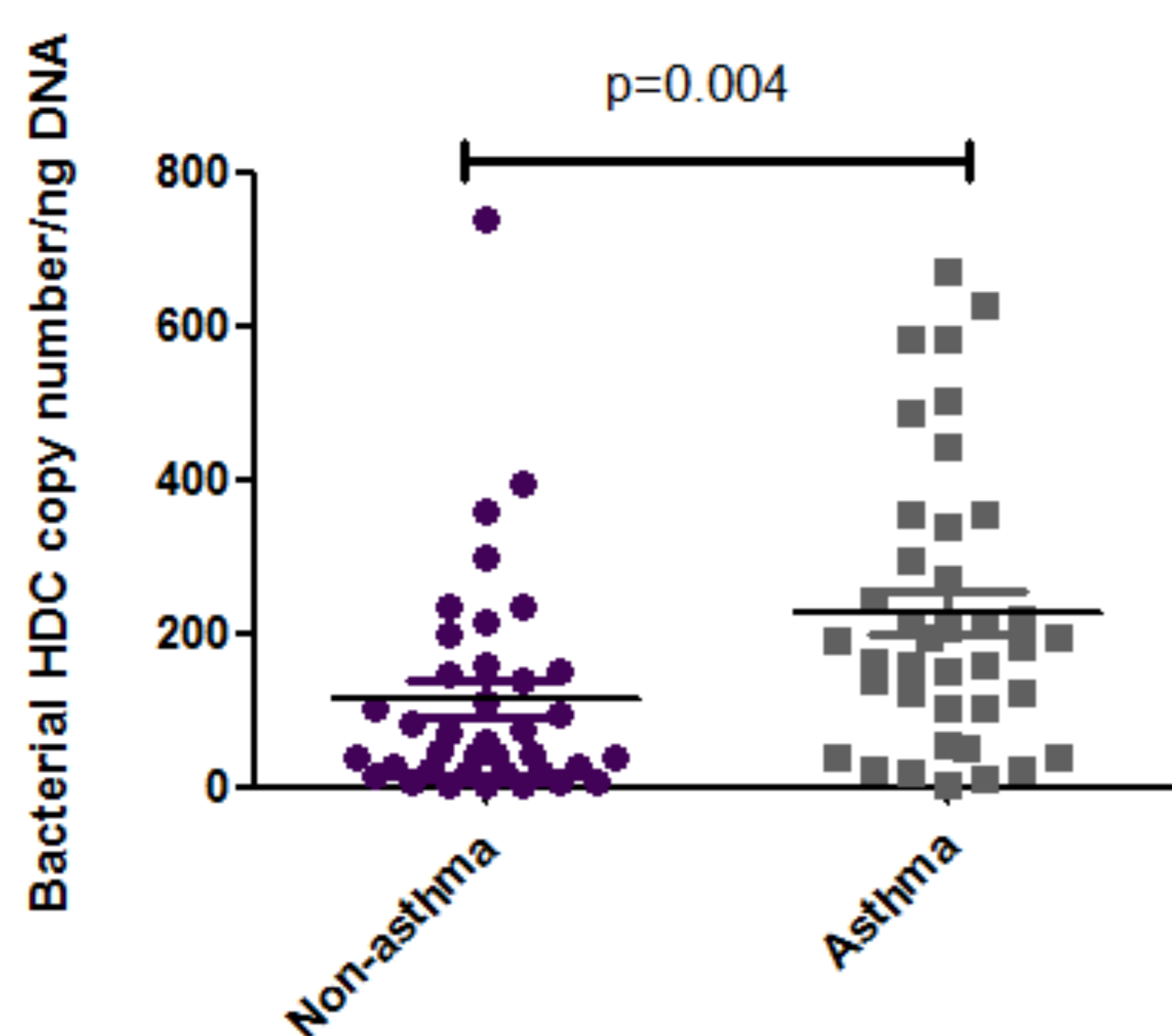
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Histamine can influence protective or pro-inflammatory immune responses. In addition to host cells, histamine is also secreted by many different bacterial strains.

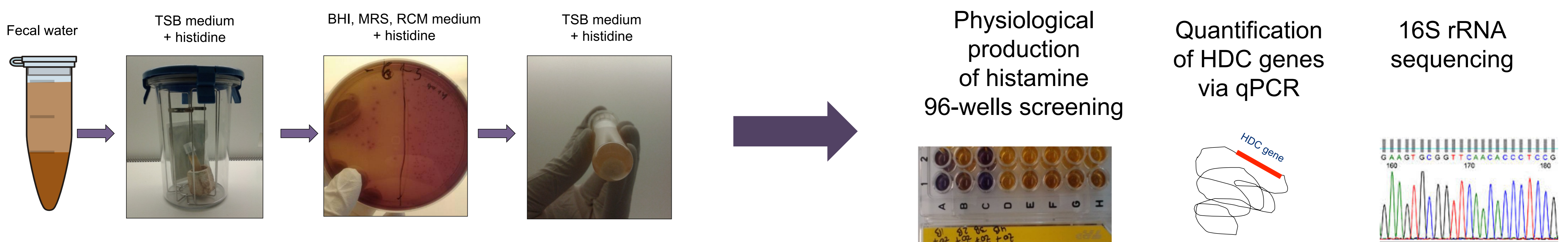
**In this study, the aim is to determine the biological role, pathological significance and therapeutic potential of bacterial-derived histamine.**

After PCR screening of fecal samples from asthma patients and healthy volunteers we observed that the bacterial HDC gene copy number was significantly higher in asthma patients compared to healthy volunteers.

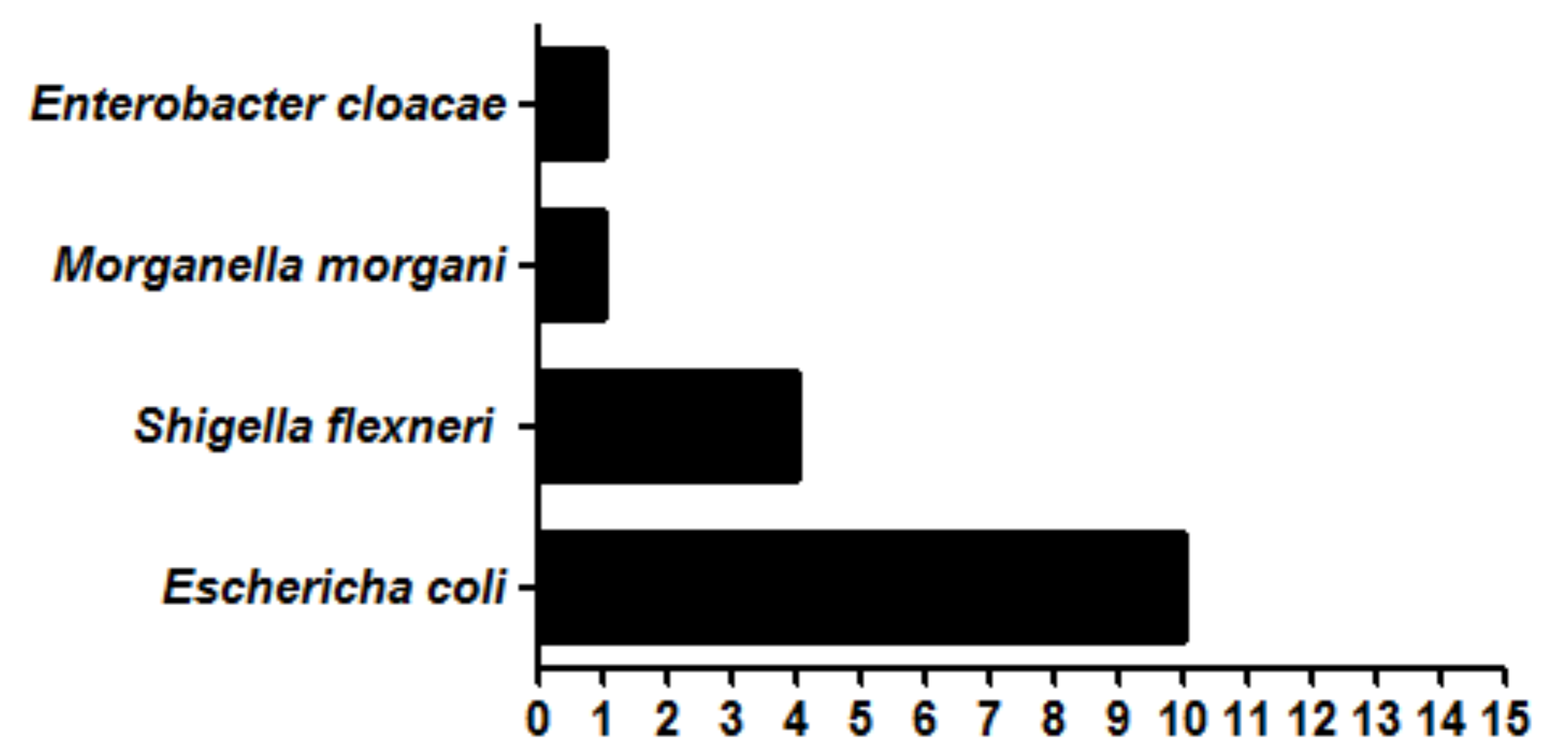
Moreover atopic asthma patients had significantly increased bacterial HDC gene copy number compared to non-atopic patients.



In order to identify the bacteria, which secrete histamine, fecal samples were cultured on TSA plates supplemented with histidine.



Based on the presence of the HDC gene and secretion of histamine we identified *Enterobacter cloacae*, *Morganella morgani*, *Shigella flexneri* and *Escherichia coli* as culturable histamine secreting bacteria, present within the gut of asthma patient.



In conclusion, we have confirmed that bacteria present within the gut microbiome can secrete histamine. Bacterial-derived histamine may have clinical relevance as increased levels of these bacteria are present within the microbiome of atopic asthma patients.