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# Antibacterial mechanism of high-mobility group nucleosomal-binding domain 2 on the Gram-negative bacteria *Escherichia coli*

**Key words:** High-mobility group nucleosomal-binding domain 2 (HMGN2); Bioactivity; Membrane permeability; Biofilm; Chemotactic activity

# *Research Summary*

**We conduct this study to investigate the antibacterial mechanism of high-mobility group nucleosomal-binding domain 2 (HMGN2) on *Escherichia coli* K12, focusing on the antibacterial and antifilm formation effects. Its chemotactic activity on human neutrophils was also investigated. The key technology used in this study was as follows:**

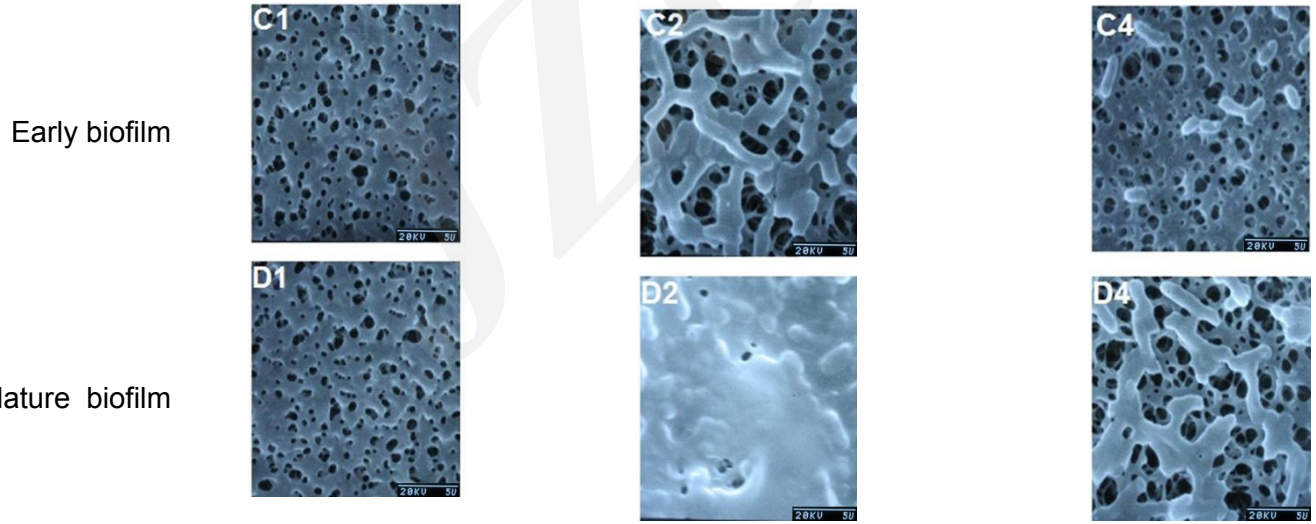
- *Agarose radial diffusion antimicrobial assay*
- *Minimum inhibitory concentration (MIC) assay*
- *Bacterial membrane permeability test*
- *DNA binding assay*
- *Crystal violet staining*
- *Scanning electron microscopy assay*
- *Nitroblue tetrazolium (NBT) reduction assay*
- *Transwell chamber cell migration assay*

# *Innovation points*

- **Introduction** of the not well understood antibacterial mechanism of HMGN2.

- **Summary** of the most updated research progress about antibacterial mechanism of HMGN2.

- **Emphasis** of the relationship between antibacterial mechanism and DNA combination or antibiofilm activity.



# *Innovation points*

**A series of figures were generated to summarize the antibacterial mechanism of HMGN2 on cells.**

**Figure 1 | The isolation and purification of human tissue-derived and recombinant HMGN2.**

**Figure 2 | Human tissue-derived and recombinant HMGN2 inhibited the growth of *E. coli* K12.**

**Figure 3 | HMGN2 increased the bacterial cell membrane permeability.**

**Figure 4 | HMGN2 bound to genomic and plasmid DNA of *E. coli* K12.**

**Figure 5 | HMGN2 disrupted the biofilm of *E. coli* K12.**

**Figure 6 | HMGN2 did not possess chemotactic activity and did not exhibit the capacity to induce the activation neutrophils.**