

MCR-1

MCR-1 (*mobilized colistine resistance*) is a relatively newly discovered gene resistant Colistin – This is considered an antibiotic of the last choice. MCR-1 is horizontally transmitted by R-plasmids, transfer is possible between different strains of bacteria. He was the first time plasmid SHP45 discovered in 2011 in China in bacteria tribe *Escherichia coli* In pigs, 2016, veterinary use of collisters was restricted.^[1] Since then, he has expanded to another thirty countries around the world.^[2]

Transfer

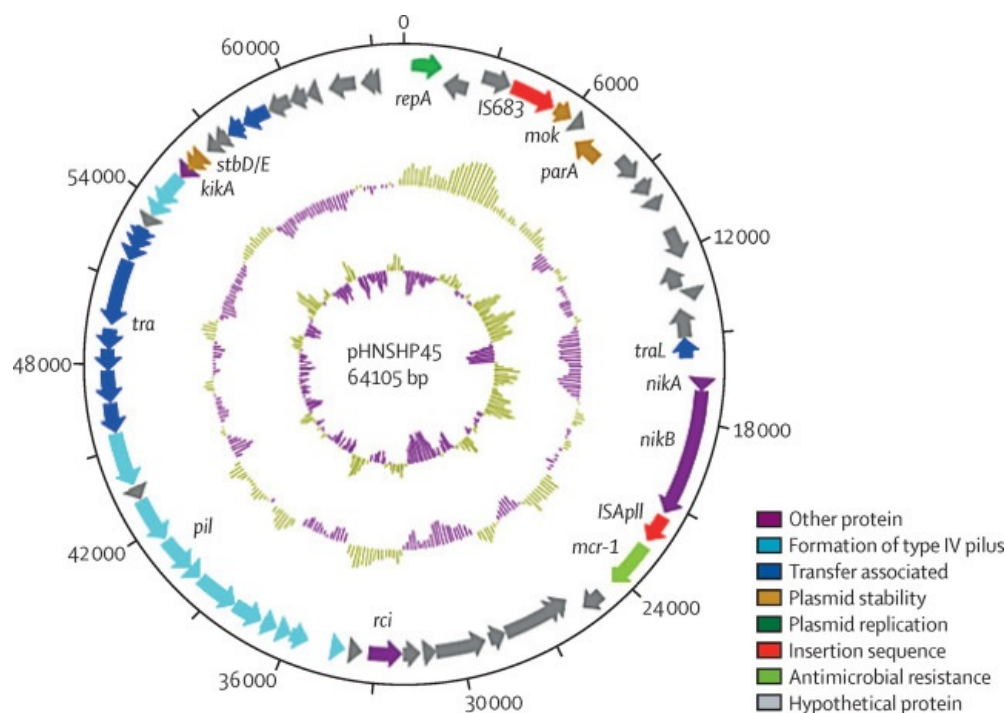
Between potential **MCRPE** (MCR-1 Positive enterobacteria) include species of bacteria *Escherichia coli*, *Klebsiella pneumoniae*, *Enterobacter cloacae*, *Enterobacter aerogenes*.^[3] MCR-1 is considered first horizontally portable gene resistant to polymyxin,^[2] The MCR-1 transmission occurs through the plasmid of over 64 Kbp with frequencies in the range 10^{-1} to 10^{-3} . MCRPE were originally detected in livestock that have overused by collisters, but transferring to humans. Surprisingly, the main risk factor for humans is not exposure to infected animals, but abuse antibiotics in history.^[4]

Mechanism of action

The resistance mechanism consists in transmitting the phosphatidylamine residue to Lipid A, which is an endotoxin component (lipopolysaccharide) anchored in outer membrane gram-negative bacteria. Phosphatidylamine in bacteria holds function chaperone – forms the tertiary structure of membrane proteins.^[5] Bacteria with such a modified lipid and have significantly lower affinity to colistin and similar polymyxins.^[6]



SEM image of the *E. coli* bacterium in which the MCR-1 gene was first identified



R-plasmid SHP45 and localization MCR-1.

Taken from ^[2].

Links

Related articles

- Colistin
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