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IN BRIEF

CLINICAL MICROBIOLOGY

Phylogenetic comparisons reveal multiple acquisitions of the toxin genes by enterotoxigenic *Escherichia coli* strains of different evolutionary lineages

Turner, S. M. *et al. J. Clin. Microbiol.* **44**, 4528–4536 (2006)

The results of a large-scale phylogenetic analysis of enterotoxigenic *Escherichia coli* (ETEC) isolates using multilocus sequence typing were recently published by Ian Henderson and colleagues in the *Journal of Clinical Microbiology*. They reveal that ETEC strains are not confined to one particular *E. coli* phylogenetic group but rather are widely distributed in all phylogentic lineages, indicating that ETEC strains have arisen multiple times. Additionally, contrary to previous work indicating that a specific genetic background is required for the expression and maintenance of ETEC virulence factors, the data allow the authors to propose the 'tantalizing suggestion' that a pathogenic ETEC strain can be generated simply by the acquisition of plasmid-encoded toxin genes. This, together with the fact that no specific chromosomal factors were associated with enterotoxigenicity, indicates that future research efforts aimed at finding good vaccine candidates should focus on plasmid-encoded virulence factors.

TECHNIQUES & APPLICATIONS

The genomoisotopic approach: a systematic method to isolate products of orphan biosynthetic gene clusters

Gross, H. *et al. Chem. Biol.* **14**, 53–63 (2007)

The genomes of microorganisms can be rich with orphan gene clusters encoding unknown and potentially biologically active natural products. A new way to mine this untapped resource was recently described in *Chemistry and Biology*. The method uses bioinformatic analysis to identify orphan biosynthetic gene clusters and the amino-acid composition of the putative product. The organism is then grown under conditions that are favourable for the expression of the biosynthetic genes and the culture is fed with an isotopically labelled amino-acid precursor. The label can then be used to guide fractionation and purification of the natural product. Using this 'genomoisotopic' approach the authors discovered orfamide A, the first member of a new subclass of cyclic lipopeptides produced by *Pseudomonas fluorescens* Pf-5.

ANTI-INFECTIVES

Mechanism of thioamide drug action against tuberculosis and leprosy

Wang, F. *et al. J. Exp. Med.* **204**, 73–78 (2007)

The thioamides ethionamide (ETH) and prothioamide (PTH) are bactericidal agents that have been widely used as second-line treatments for leprosy and tuberculosis for many years. Although known to inhibit mycolic acid biosynthesis, their precise mechanism of action has been unknown. Now, James Sacchettini, William Jacobs and colleagues, writing in the *Journal of Experimental Medicine*, have found that ETH and PTH form covalent adducts with NAD (nicotinamide adenine dinucleotide) and these adducts inhibit InhA, an enoyl-acyl ACP reductase required for mycolic acid biosynthesis.