INTEGRONS

Summary

Accumulation of antibiotic resistance among pathogenic bacteria has called attention to horizontal gene transfer that involves plasmids and transposons. Integrons, usually placed on mobile genome elements, are very deeply engaged in the process of origin of multiple-drug-resistant strains. Integrons are genetic elements that contain determinants of the components of the site-specific recombination system that recognizes and captures mobile gene cassettes. More than 70 different antibiotic resistance genes covering most classes of antimicrobials presently in use have been detected in gene cassettes. Integrons are frequently found in clinical and environmental strains of gram-negative rods. The discovery of super-integrons, i.e. genetic structures gathering gene cassettes in a huge number, led to the conception of genome cassettes capture as an element of a broader phenomenon of bacterial genome modification in response to changing environmental conditions.