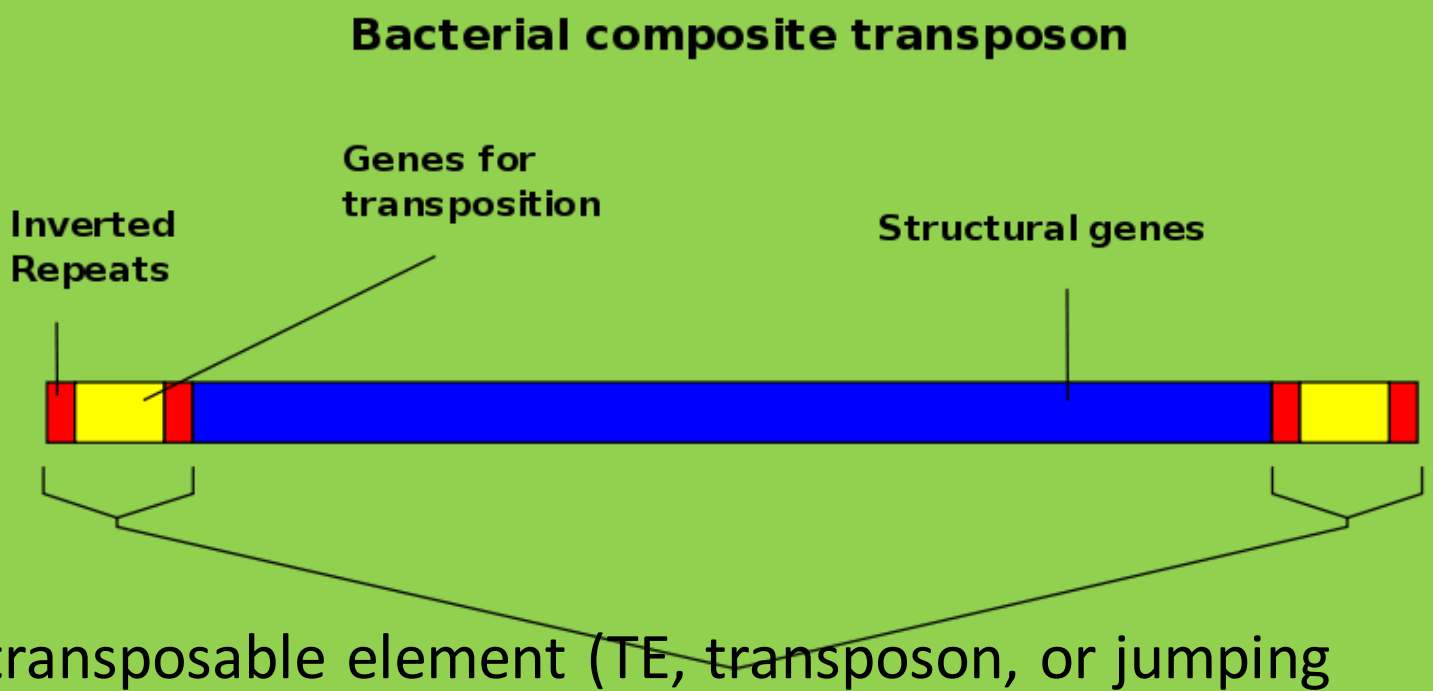
Transposons can be grouped on mechanisms of movement and by lengths of the bounding inverted repeats or of target site duplication created by transposition. Class II transposons, such as Tn3 and Tn501 utilise two-step replicative transposition involving a transposase, tnpA, and a resolvase, tnpR, gene. The Tn402/Tn5053 family has four genes, tniABQR, required for transpositionwhile Tn7 and relatives contain five (tnsABCDE). Despite their role in antimicrobial resistance dissemination and a detailed mechanistic view of transposition there have been no studies aimed at revealing the evolutionary history of transposon families by interrogating global genome sequence datasets.

This is largely because the ability to search all existent bacterial sequences is non-trivial and only recently realised. We took a selection of 37 representative variants of the above transposon families and queried their nature and distribution across sequence space using bigsi (http://www.bigsi.io/), a searchableindex of the bacterial ENA (455 632 datasets, Dec 2016) and Shovill (https://github.com/tseemann/shovill). Constrained by the sequence data that exists and the biases this may engender, this analysis provides broad insights into the prevalence and spread of important MGE.




A transposable element (TE, transposon, or jumping gene) is a DNA sequence that can change its position within a genome, sometimes creating or reversing mutations and altering the cell's genetic identity and genome size.[1] Transposition often results in duplication of the same genetic material.

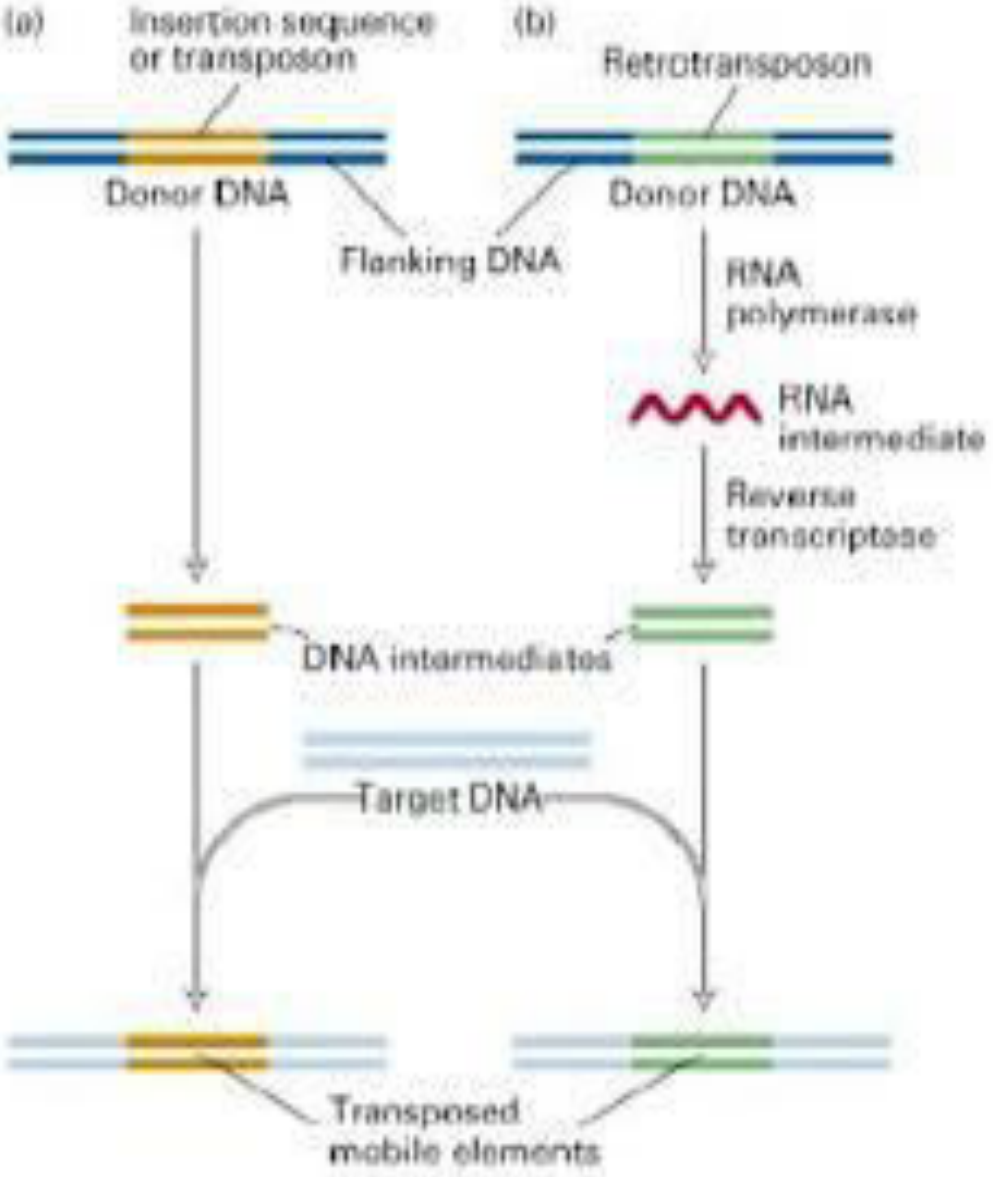
# BACTERIAL TRANSPOSONS

- In bacteria, transposons can jump from chromosomal DNA to plasmid DNA and back.

- Transposons in bacteria usually carry an additional gene for function other than transposition---often for antibiotic resistance.

- Bacterial transposons of this type belong to the Tn family. When the transposable elements lack additional genes, they are known as insertion sequences.

# Classification of Transposons into two classes




In both cases ds DNA intermediate is integrated into the target site in DNA to complete movement