CYTOGENETICS

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1. Introduction

Cytogenetics is the subbranch of genetic research that is primarily concerned with the structural functionality of a cells constituent components. In particular, the cells chromosomes are of particular focus. This is because the chromosomes are the constituent of the cell that contains its genetic code and the structural functionality plays a critical role in epigenetic expression of the encoded genes.

One particular routine analytic method used commonly is the study of *G-banded chromosomes*. Giemsa banding or *G-banding* is technique to produce visible *karyotypes* by staining condensed chromosomes. The term *karyotypes* is the Greek word for kernel type or nucleus type, we shall make this language clear later. The stain involved is *Giemsa* and hence the name G-bandeding. The stain Giemsa is named after a German scientist who first used it however the compound is actually a mixture of methylene blue, eosin (named after the Greek god Eos of the morning dawn and so eosin is red) and azure B.