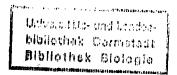
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MOLECULAR BIOLOGY OF THE CELL

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Nr. 15752



Garland Publishing, Inc. New York & London

Jeschenk von Prof. Kluge

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A Diploid Species Can Rapidly Enrich Its Genome by the Addition of New Genes Summary

Meiosis

Meiosis-Involves Two Nuclear Divisions Rather Than One

Genetic Reassortment Is Enhanced by Crossing Over Between Homologous Nonsister Chromatids

A Synaptonemal Complex Mediates Chromosome Pairing

Recombination Nodules Are Thought to Mediate the **Chromatid Exchanges**

Chiasmata Play an Important Part in Chromosome Segregation in Meiosis

Pairing of the Sex Chromosomes Ensures That They Also Segregate

Meiotic Division II Resembles a Normal Mitosis Summary

Gametes

An Egg Is the Only Cell in a Higher Animal Able to Develop into a New Individual

Eggs are Highly Specialized Cells with Unique Features

Eggs Develop in Stages

Many Eggs Grow to Their Large Size Through Special Mechanisms

Hormones Induce Egg Maturation and Ovulation

Oogenesis Is Wasteful

Sperm Are Highly Adapted for Delivering Their DNA to an Egg Sperm Are Produced Continuously in Many Mammals

Sperm Nuclei Are Haploid, But Sperm Cell Differentiation Is Directed by the Diploid Genome Summarv

Fertilization

A Sperm Must Be Activated Before It Can Fertilize an Egg Sperm-Egg Adhesion Is Mediated by Species-specific Proteins Egg Activation Is Mediated by Changes in Intracellular Ion Concentrations The Rapid Depolarization of the Egg Membrane Prevents Further Sperm-Egg Fusions, Thereby Mediating the Fast Block to Polyspermy The Cortical Reaction Is Responsible for the Late Block to Polyspermy An Increase in Intracellular Free Ca²⁺ Initiates Egg Development A Rise in the Intracellular pH in Some Organisms Induces the Late Synthetic Events of Egg Activation

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