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| BIO1404: Κυτταρική Οργάνωση Ζωής |
| “Cellular organization of life” |
| Νοέμβριος-Δεκέμβριος/Διάρκεια: 3 εβδομάδες |
| A) CANCER BIOLOGY -CELL CYCLE & DIVISION |
| G. Zachos |
| Cell cycle checkpoints in vertebrate cells |
| · The cell cycle control system: cell cycle checkpoints |
| · The DNA damage and DNA replication checkpoints |
| · The mitotic spindle checkpoint |
| · DNA bridges and the abscission checkpoint |
| I. Keklikoglou |
| Targeting the hallmarks of cancer |
| - Introduction to cancer biology and complexity |
| - Introduction to the hallmarks of cancer |
| - Combinatorial targeting approaches to overcome therapy resistance |
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| B) CELL ORGANIZATION AND TRANSPORT |
| C. Delidakis |
| Mechanisms of endocytosis and endosome trafficking |
| mechanisms of endocytosis at the plasma membrane |
| endosome sorting and cargo trafficking |
| examples of regulated cargo trafficking (signalling molecules and nutrient transporters) |
| P. Theodoropoulos |
| Nuclear envelope. Nuclear pore structure and nucleo-cytoplasmic transport |
| Nuclear envelope composition, organization and dynamics |
| Nuclear pore composition and structure |
| Nucleo-cytoplasmic transport |
| P. Moschou |
| Animal vs Plant cells |
| Differences in cell organization |
| Cytoskeleton dynamics |
| Membrane dynamics |
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| C1) THE NERVE CELL: PROPERTIES AND MODELS – NEURODEGENERATION |
| K. Sidiropoulou |
| a) Nerve cells: Types, properties, function |
| b) Membrane potential, Action potential initiation and propagation |
| c) Ion channels |
| K. Sidiropoulou |
| a) Electrical/chemical synapses |
| b) Transmitter receptors with a focus on ionotropic receptors |
| c) Signal integration |
| M. Monastirioti |
| Transmitters and Transmitter release (presynaptic release machinery) |
| Chemical synapse (Pre- and Post-synaptic sites) |

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