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Research Articles

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Mechanistic Insights into the Role of Hydrophobic Interactions in Protein Folding Pathways

Sven M. Jansen, Aria K. Patel, Li Wei-Hua

Keywords: protein folding, hydrophobic interactions, molecular dynamics, circular dichroism, globular proteins, folding pathways

2.

Dynamics of Synaptic Plasticity: Insights into Mechanisms of Neuronal Adaptation

Matthias P. Schneider, Linh Dao-Phuong, Tariq H. Al-Mansouri

Keywords: synaptic plasticity, long-term potentiation, long-term depression, calcium signaling, AMPA receptor, NMDA receptor, electrophysiology

3.

Elucidating the Role of Poly(ADP-ribose) Polymerase in DNA Double-Strand Break Repair

Dr. Arjun V. Desai, Li-Xiu Zhang, Prof. Miriam van der Hoek

Keywords: DNA repair, poly(ADP-ribose) polymerase, homologous recombination, non-homologous end joining, CRISPR-Cas9, apoptosis

4.

Dynamic Interplay of Mitochondrial and Lysosomal Networks in Cellular Function Regulation

Helena K. Fischer, Sunil Bhattacharya, Zhao Ming-Wei

Keywords: organelle dynamics, mitochondria, lysosomes, cellular homeostasis, proteomics, live-cell imaging, VPS35

5.

Integrating Deep Learning and Evolutionary Algorithms for Enhanced Protein Structure Prediction

Stefan J. Müller, Mei-Ling Hu, Rajiv N. Patel

Keywords: protein structure prediction, deep learning, evolutionary algorithms, convolutional neural networks, genetic algorithm, TM-score, CASP benchmarks

6.

Interplay Between Human Gut Microbiome Diversity and Metabolic Health: A Cross-Cultural Analysis

Hans-Peter Müller, Min-Jae Lee, Fatima El-Sayed

Keywords: gut microbiome, metabolic health, Firmicutes, Bacteroidetes, 16S rRNA sequencing, cross-cultural analysis, dietary influence

7.

Enhancing Plant Stress Tolerance through CRISPR-Cas9 Mediated Gene Editing in *Arabidopsis thaliana*

Konrad F. Müller, Kimiko Sato, Vikas N. Patel

Keywords: CRISPR-Cas9, gene editing, Arabidopsis thaliana, drought tolerance, salinity tolerance, DREB1A, SOS1

8.

Assessing the Role of Genetic Diversity in Climate Adaptation of Alpine Flora

Marta J. van der Meer, Takashi Inoue, Arjun Kumar

Keywords: climate adaptation, genetic diversity, alpine flora, ecological resilience, phenotypic traits, biodiversity conservation, ecosystem resilience