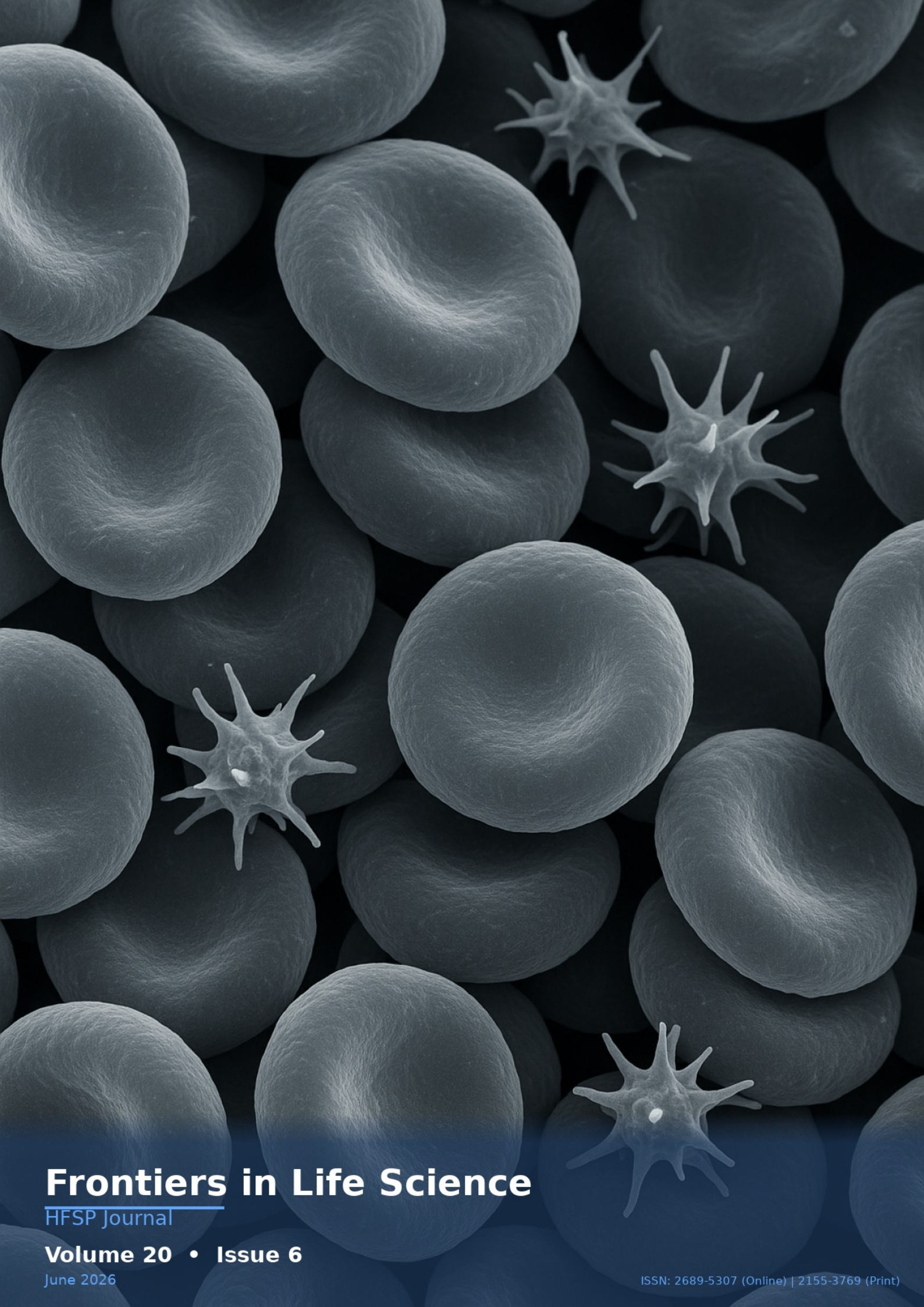




# Frontiers in Life Science

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#### **Decoding Epigenetic Regulation in Leukocytes: Impacts on Cellular Differentiation and Immunity**

Anja M. Bremer, Kenjiro Sato, Nandini Iyer

*Keywords: epigenetics, leukocyte differentiation, DNA methylation, histone acetylation, immune modulation, cytokine production*

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2.

#### **Divergence in Gut Microbiome Composition Across Diverse Dietary Patterns**

Emma L. Schneider, Amir Al-Saadi, Miho Suzuki

*Keywords: Gut Microbiome, Dietary Patterns, Microbial Diversity, 16S rRNA Sequencing, Mediterranean Diet, Bifidobacterium, Prevotella*

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#### **Enhancing Protein Structure Prediction With Hybrid Deep Learning Algorithms**

Stefan M. Fischer, Li Mei-Yun, Priya N. Iyer

*Keywords: Protein Structure Prediction, Deep Learning, Convolutional Neural Networks, Attention Mechanisms, Computational Efficiency, Bioinformatics*

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#### **Innovative Adjuvant Formulations Enhancing Immunogenicity in mRNA Vaccine Platforms**

Lars Müller-Stein, Mei-Ling Zhang, Javier López-Alonso

*Keywords: mRNA vaccine, adjuvants, immunogenicity, lipid nanoparticles, T-cell response, cytokine production*

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### **Genomic and Biochemical Strategies for Enhancing Drought Tolerance in Soybean Cultivars**

Matthias J. Müller, Li Na Chen, Ahmed Al-Hussein

*Keywords: drought tolerance, soybean, genome-wide association study, osmoprotectants, quantitative trait loci, marker-assisted selection*

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6.

### **Impact of Habitat Fragmentation on Pollinator Diversity in Tropical Ecosystems**

Johannes F. Müller, Mei-Ling Zhao, Anita M. Chukwu

*Keywords: habitat fragmentation, pollinator diversity, tropical ecosystems, biodiversity conservation, ecosystem services, landscape management*

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### **Mechanisms of Cell Fate Determination in Early Embryonic Development: A Cross-Species Analysis**

Nils van der Meer, Ananya Menon, Farhad El-Khoury

*Keywords: cell fate, embryonic development, Notch signaling, transcription factors, single-cell RNA sequencing, CRISPR-Cas9, pluripotency*

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### **Leveraging CRISPR-Cas9 for Targeted Genomic Modifications in *Arabidopsis thaliana***

Marek Wójcik, Aiko Matsumoto, Thulani Dlamini

*Keywords: CRISPR-Cas9, Arabidopsis thaliana, genomic editing, guide RNA, gene function, plant biotechnology, mutation efficiency*