

Special Issue

Molecular Insights into Genetic and Epigenetic Alterations in Age-Related Diseases

Message from the Guest Editors

Aging represents a major risk factor for the development of chronic and degenerative diseases, including neurodegenerative disorders, metabolic diseases, and cancer. Increasing evidence highlights the central role of molecular mechanisms at the (epi)genomic level in driving the onset and progression of age-related diseases. Individual genetic make-up, genomic instability, high-order chromatin interactions, telomere (dys)regulation, and mitochondrial DNA alterations intersect with epigenetic modifications. These processes contribute to altered gene expression, impaired cellular homeostasis, and tissue dysfunction. Recent advances in high-throughput technologies and integrative/spatial omics have provided unprecedented opportunities to map molecular alterations in aging and identify novel biomarkers of disease susceptibility, progression, and therapeutic response. This Special Issue aims to collect original research and comprehensive reviews broadly exploring the molecular, genetic, and epigenetic landscape in age-related diseases, with a focus on mechanistic insights, translational implications, and novel therapeutic strategies.

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