



PP6.1. USING HUMAN EXPOSOMICS TO COMPLEMENT AND ENRICH GENOMIC RESEARCH

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Because genetics and the environment interact to drive gene expression, we propose that exposomics must now be incorporated into the multi-omics paradigm to complete the overall biological pathway. Exposomics' groundbreaking tools and life-course framework holistically characterize non-genetic (environment) components of chronic diseases and integrate with multi-omics. This work brings forward the importance of the human exposome as a major driver of gene/protein expression across the life course. Exposome features are noteworthy for multi-omics as they (1) show where and when biodynamic trajectories of gene x environment interactions meet; (2) move beyond single-environmental-factor-centric views; (3) integrate exposomic measurements during and outside of critical windows of susceptibility; (4) provide agnostic discovery and hypothesis-generating studies; and (5) are biodynamic over time. Upon applying these unique features of the human exposome, future human studies are anticipated to revolutionize the integration of genetics and environmental health sciences.