

## GLOBAL ANALYSIS OF HOST-PATHOGEN INTERACTIONS THAT REGULATE EARLY HIV-1 REPLICATION

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Human Immunodeficiency Viruses (HIV-1 and HIV-2) rely upon host-encoded proteins to facilitate their replication. We have combined genome-wide siRNA analyses with interrogation of human interactome databases to assemble a functionally validated host-pathogen biochemical network containing 213 confirmed host cellular factors and 11 HIV-1-encoded proteins. Additionally, over 40 new factors were shown to specifically influence the initiation and/or kinetics of HIV-1 reverse transcription, and 15 proteins with diverse functional roles were found to influence nuclear import or viral DNA integration. Taken together, this multiscale analysis approach has uncovered virus-host interactions that likely act in concert to facilitate the early steps of HIV-1 infection.