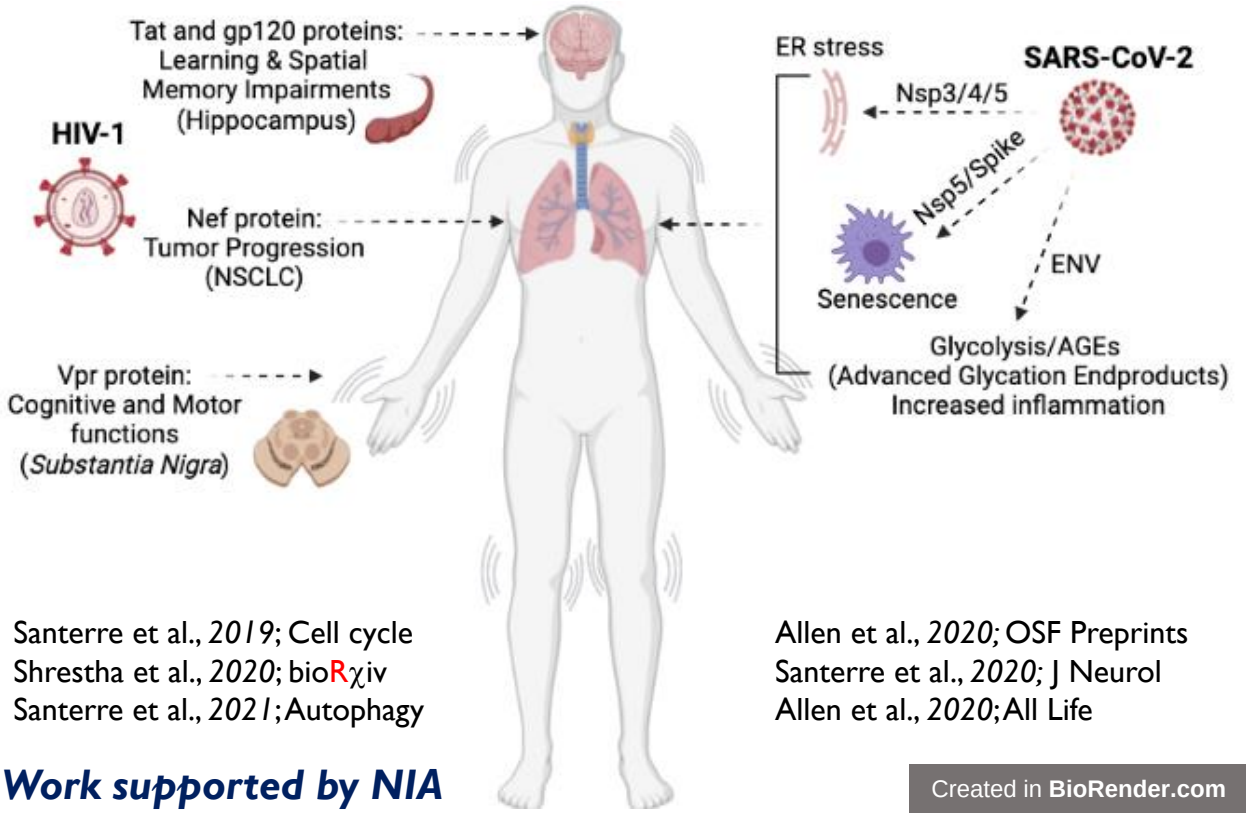
Involvement of Viral Proteins in Premature Organs Aging

Impact: deciphering the mechanisms used by HIV-1 proteins leading to learning/ spatial memory impairments and movement disorders

Impact: deciphering the mechanisms used by SARS-CoV-2 proteins causing lung and other organs failure



Santerre et al., *2019*; Cell cycle
Shrestha et al., *2020*; bioRχiv
Santerre et al., *2021*; Autophagy

Allen et al., *2020;* OSF Preprints
Santerre et al., *2020;* J Neurol
Allen et al., *2020*; All Life

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Our findings:

HIV-1 proteins cause the loss of mitochondrial energy, lysosomal acidity, and synaptic plasticity.

SARS-CoV-2 proteins cause ER stress, Golgi apparatus fragmentation, cell senescence, and increased AGEs.

Implications:

Use of small molecules to

1- complement existing therapy to prevent loss of spatial memory, cognitive and motor functions in HIV-1 and Parkinson's patients.

2- prevent long term organs damage caused by COVID-19.