

Proteomic Analysis of Conditioned Media from hONE-NPC in Sporadic Alzheimer’s Disease: A Mexican Cohort.

Wednesday-0292

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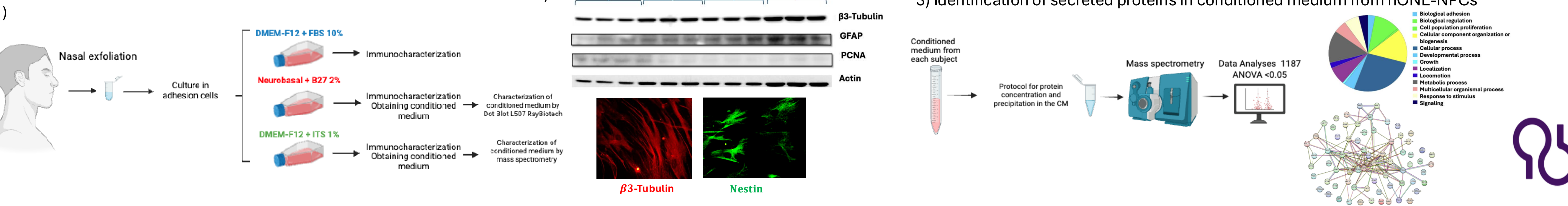
- Proteomics, Biomarkers, Aging, Stem cells, Neuronal, Cellular Communication, Secretion, Neurotrophins

INTRODUCCION

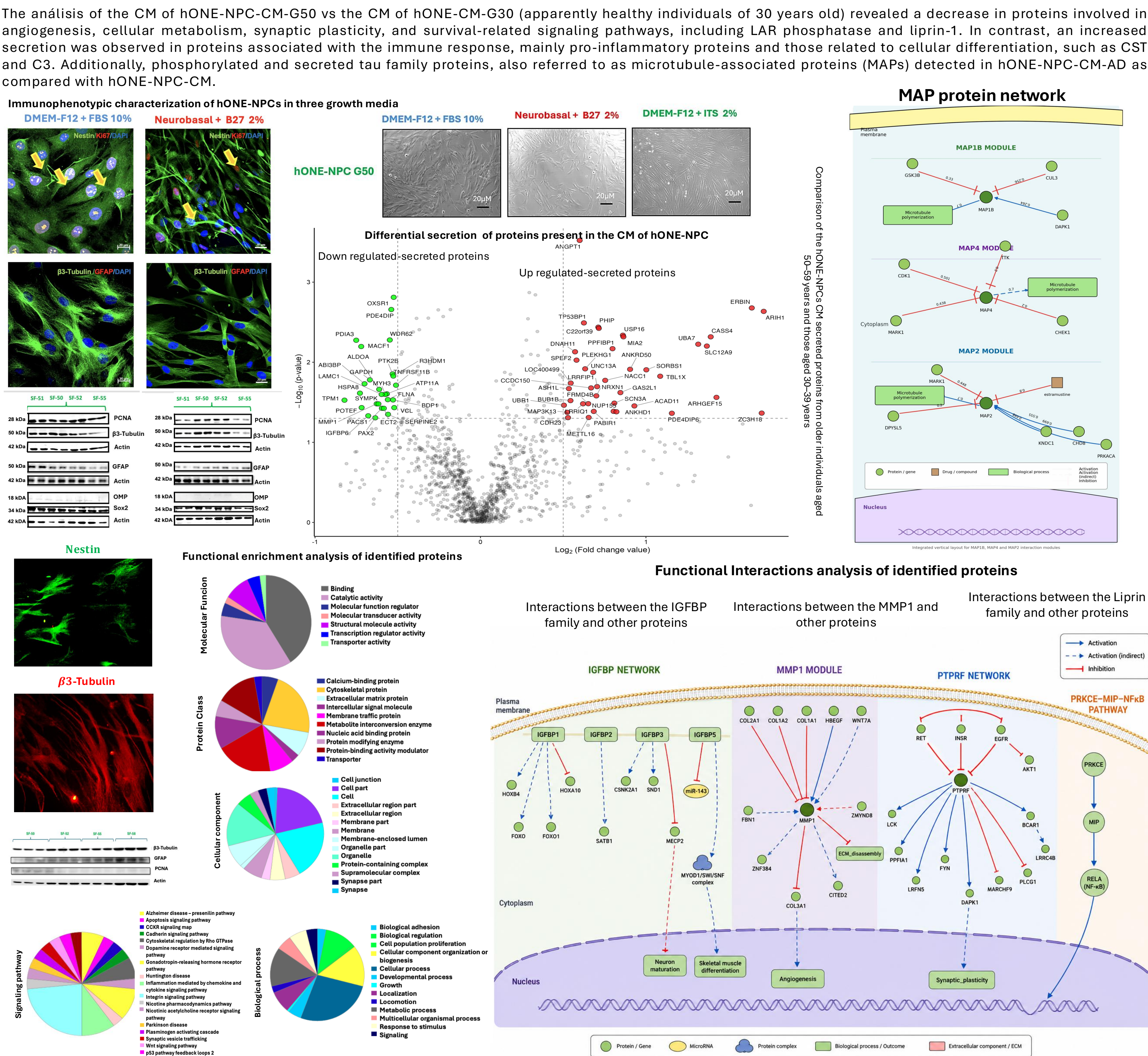
Communication between neuronal precursors occurs through the secretion of multiple proteins and chemokines that freely diffuse from one cell to another, regulating diverse cellular processes. During aging, proliferation and precursor potential are altered, favoring a pro-inflammatory state. In vitro studies have shown that aging alters the composition of secreted proteins and chemokines; these secreted proteins are commonly analyzed using conditioned medium (CM). However, the composition and secretion profile of neuronal precursors during Alzheimer’s disease (AD) neurodegeneration remains unknown. The most discussed hypotheses regarding AD propose that the secretion of Amyloid beta oligomers and tau protein induces an “infectious” or propagative behavior that affects surrounding cells, enabling an accelerated and widespread progression of the pathological process. Therefore, it is necessary to further characterize and analyze the proteins and chemokines secreted by neuronal precursor cells from patients with early AD.

METHODS

hONE-NPCs were immunophenotypically characterized. Subsequently, mass spectrometry was used to identify proteins present in the conditioned medium from hONE-NPCs cell populations from apparently healthy individuals (from two different age groups: 50-59 and 30-39 years old) and subjects diagnosed with Sporadic Alzheimer’s disease. Finally, a bioinformatic analysis focused on functional enrichment was performed to study the potential biological implications of the secreted proteins.

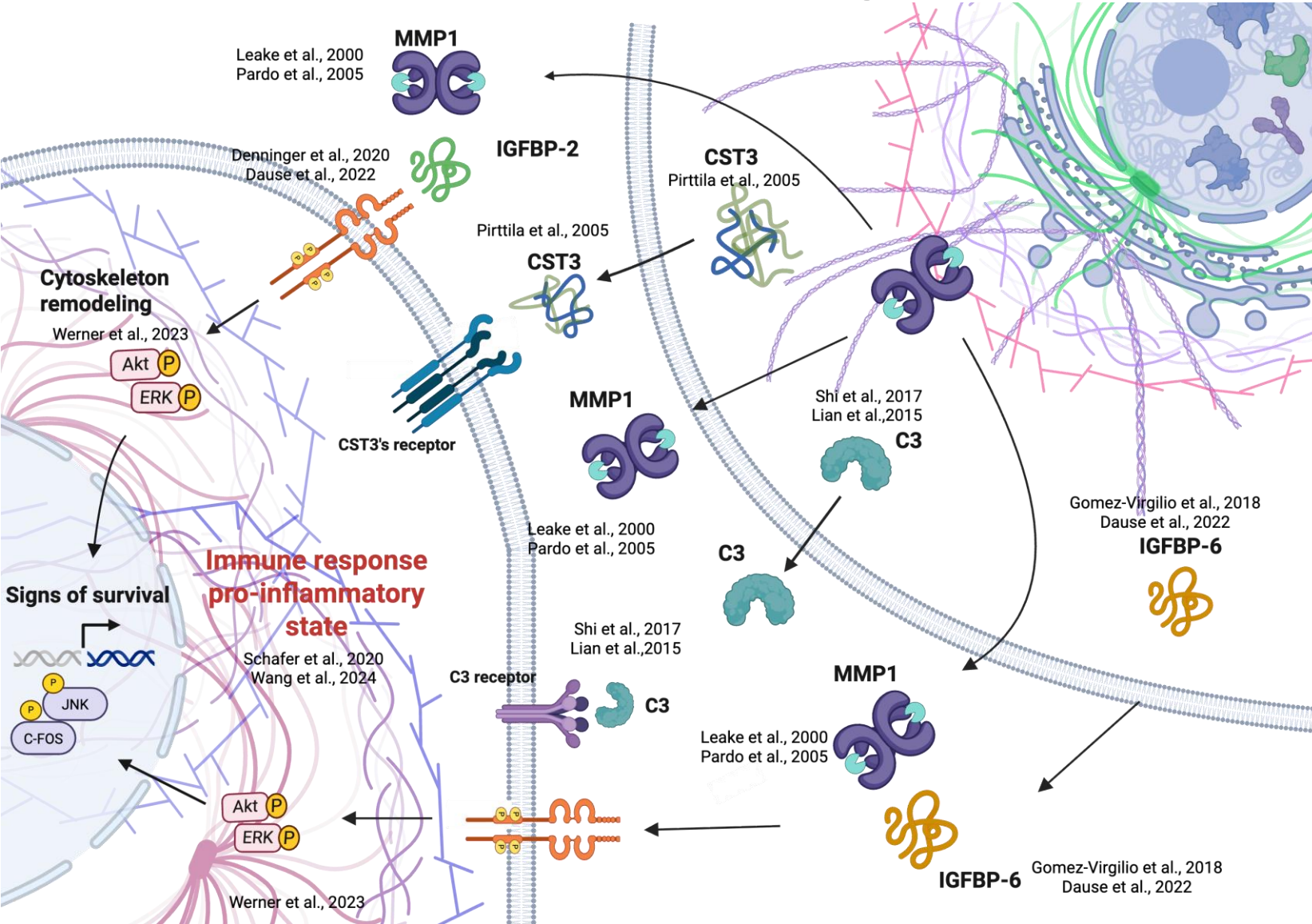


RESULTS



CONCLUSION

hONE-NPC-CM represents a useful model for evaluating changes in protein secretion associated with AD pathology. To date, no studies have focused on conditioned medium or changes in trophic factors (BDNF), extracellular matrix (MMP1), immune proteins (C3, CST3), Tau family protein (MAP1B, MAP4, MAP2) and survival-related proteins (such as the Liprin and IGFBP families) in primary cultures of human olfactory neuroepithelial progenitor cells in the context of aging and AD. Therefore, this model may open a new research avenue for studying secreted factors involved in AD-related neurodegeneration.



References

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