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Memorial Sloan Kettering
Cancer Center

[About Us](#)
[Sloan Kettering Institute](#)
[The Gabriela Chiosis Lab](#)

[Research](#)

Postdoctoral researcher-translational

[Education & Training](#)

research/biomedicine

[News & Events](#)

Postdoctoral fellow/scholar position is available immediately in a multidisciplinary team studying maladaptive changes in proteome-wide protein-protein interaction networks in disease. These efforts will be conducted in collaboration with scientists and clinicians at Memorial Sloan Kettering Cancer Center, New York University Grossman School of Medicine, Weill Cornell Medical College, Nathan Kline Institute, and Columbia University, Taub Institute for Research on Alzheimer's Disease and the Aging Brain.

When people consider disease etiology, they often think about genetic or pathological causes of disease. To us, these are one of the many stressors that can affect the way cells behave. These changes, intrinsic to the cell or its milieu or the organism as a whole, accumulate over a lifetime, eventually leading to proteome changes, causing malfunction. This in turn has a negative effect on cell behavior and its network connections. In this context, we think of disease states as embodiments of exposure of cells to stressors. Understanding adaptive and maladaptive responses to stressors and how these differ between normal and diseased tissues remains unsatisfactorily addressed. A key to addressing this unresolved biological question is to study how stressors impact tissue-specific 'interactomes', the intricate proteome-wide cellular networks of proteins linked through interactions. In this context interactomes are maps of how stressors, including genetic lesions, proteotoxic and environmental insults, individually or combined, alter protein-protein interaction networks and perturb the system as a whole.

Our program takes advantage of properties of protein-protein interaction networks (i.e., interactome networks) to understand, diagnose and treat diseases, such as cancer and neurodegenerative diseases. We aim to investigate the identity and the architecture of interactome networks in cells exposed to chronic molecular and environmental stressors with the goal of understanding disease mechanisms and identifying vulnerabilities. Our multidisciplinary approach aims to take advantage of these vulnerabilities to discover and develop drug candidates, biomarkers, diagnostics, and treatment strategies. Compounds and diagnostics discovered by our team are currently in clinical evaluation in cancer and Alzheimer's disease.

<https://www.chiosislab.com/pipeline>.

For publications relevant to this research please refer to :

Nature Communications 2020 Jan 16;11(1):319. The epichaperome is a mediator of toxic hippocampal stress and leads to protein connectivity-based dysfunction. DOI: [10.1038/s41467-019-14082-5](https://doi.org/10.1038/s41467-019-14082-5)

Nature Reviews Cancer 2018 Sep;18(9):562-575. Adapting to stress – chaperome networks in cancer. DOI: [10.1038/s41568-018-0020-9](https://doi.org/10.1038/s41568-018-0020-9)

Nature 2016 Oct 20;538(7625):397-401. The epichaperome is an integrated chaperome network that facilitates tumour survival. DOI: [10.1038/nature19807](https://doi.org/10.1038/nature19807)

Cell Reports 2020 Jun 30;31(13):107840. Molecular Stressors Engender Protein Connectivity Dysfunction through Aberrant N-Glycosylation of a Chaperone. DOI: [10.1016/j.celrep.2020.107840](https://doi.org/10.1016/j.celrep.2020.107840)

Nature Communications 2018 Oct 19;9(1):4345. HSP90-incorporating chaperome networks as biosensor for disease-related pathways in patient-specific midbrain dopamine neurons.

NPJ Precision Oncology 2021 May 26;5(1):44. Targeting the epichaperome as an effective precision medicine approach in a novel PML-SYK fusion acute myeloid leukemia. DOI: [10.1038/s41698-021-00183-2](https://doi.org/10.1038/s41698-021-00183-2)

JCO Precision Oncology 2020 Nov 17;4:PO.20.00273. Measuring Tumor Epichaperome Expression Using [124I] PU-H71 Positron Emission Tomography as a Biomarker of Response for PU-H71 Plus Nab-Paclitaxel in HER2-Negative Metastatic Breast Cancer. DOI: [10.1200/PO.20.00273](https://doi.org/10.1200/PO.20.00273)

Hippocampus 2019, 29: 422-439. Selective decline of neurotrophin and neurotrophin receptor genes within CA1 pyramidal neurons and hippocampus proper: correlation with cognitive performance and neuropathology in mild cognitive impairment and Alzheimer's disease. doi.org/10.1002/hipo.22802

Molecular Neurobiology 2021. Profiling basal forebrain cholinergic neurons reveals a molecular basis for vulnerability within the Ts65Dn model of Down syndrome and Alzheimer's disease. DOI: [10.1007/s12035-021-02453-3](https://doi.org/10.1007/s12035-021-02453-3)

FEBS Journal 2021. Disease-specific interactome alterations via epichaperomics: the case for Alzheimer's disease. DOI: [10.1111/febs.16031](https://doi.org/10.1111/febs.16031)

The successful candidate will:

Have up to five years of postdoctoral experience with a demonstrated competence and experience in the biology of cancer or neurodegenerative disorders.

Have demonstrated ability to work independently and lead projects while also collaborating and assisting the group achieve its research goals

Candidates with an ability to interact well with a large interdisciplinary team are encouraged to apply.

Requirements:

A strong desire to impact human disease

Creativity in problem solving and a team spirit

Knowledge of standard molecular and cell biology methods

Basic understanding of statistical analysis and bioinformatics approaches

Good communication/written skills

Passion for science, and flexibility to work some evenings and weekends

Ability to work towards defined goals in an efficient, safe and scientifically sound manner.

Written applications, including a cover letter, CV and contact details of three professional referees should be forwarded to skichiosis@mskcc.org AND coratio2712@yahoo.com.

The applicant will be hired as part of the Chiosis lab at Memorial Sloan Kettering. For more information on Memorial Sloan Kettering Cancer Center and the Chiosis lab see www.mskcc.org and www.mskcc.org/chiosis

Memorial Sloan Kettering Cancer Center is located in New York City, in Manhattan's Upper East Side, adjacent to the Cornell University Weill Medical College and the Rockefeller University, and a cab drive away from New York University Grossman School of Medicine, Nathan Kline Institute, and Columbia University, Taub Institute for Research on Alzheimer's Disease and the Aging Brain. This rich scientific environment provides many unique and unparalleled research training opportunities (www.mskcc.org/education-training/postdoctoral)

To learn more about Postdoc compensation and benefits at MSK, [click here](#).

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Email

skichiosis@mskcc.org

Position

Postdoctoral

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[Overview](#)

[Leadership](#)

[Administration](#)

[History](#)

[Contact Us](#)



▾ Research

[Overview](#)

[Research programs](#)

[Research labs](#)

[Core facilities & resources](#)

▾ Education & Training

[Overview](#)

[Postdoctoral training](#)

[Gerstner Sloan Kettering Graduate School](#)

[Joint graduate programs](#)

[Programs for college & high school students](#)

▾ News & Events

[Overview](#)

[Seminars & events](#)

▾ Open Positions

[Overview](#)

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[Postdoctoral positions](#)

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