HUMAN ONCOLOGY & PATHOGENESIS PROGRAM

The Michael Berger Lab

ABOUT US

Our mission, vision & core values

Leadership

History

Equality, diversity & inclusion

Annual report

Give to MSK

Michael F. Berger, PhD

Co-Director, Marie-Josée & Henry R. Kravis Center for Molecular Oncology; Chief Attending, Clinical Computational Diagnostics Service, Department of Pathology and Laboratory Medicine

The focus of the Berger laboratory is to use novel computational and experimental techniques to characterize the spectrum of genetic mutations in human tumors in order to identify biomarkers of cancer progression and drug response.

The identification of molecular drivers of cancer and the development of targeted therapies for these drivers offer hope for better outcomes for patients with cancer. Global efforts to comprehensively characterize the genomes of all major cancer types continue to reveal new genetic alterations with implications for tumor biology, prognosis, and treatment. Using massively parallel next-generation DNA sequencing, we are developing and applying methods of profiling individual tumor specimenspatient

biospecimens for somatic base mutations and other genomicand inherited alterations that may influence response to therapy. Our research falls into two main categories: technology development and biomarker discovery.

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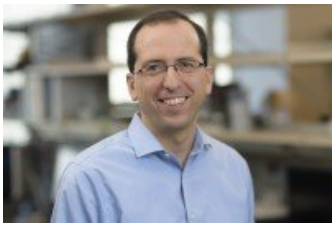
Featured News

IN THE LAB



[How Do Inherited Gene Mutations Cause Cancer? A New Database Will Help Researchers Find Out]

In a new paper, a collaborative team of MSK experts reports how a novel tool will help researchers learn more about the role of inherited hereditary mutations.

FEATURE

How MSK-ACCESS Blood Test for Cancer was Created

MSK-ACCESS, a blood test that can detect mutations in 129 genes related to cancer, has already helped guide the treatment of more than 2,800 patients at MSK.

FINDING

Machine Learning May Help Classify Cancers of Unknown Primary

MSK investigators report a new tool that may help them determine the origin of some metastatic tumors, potentially leading to better targeted treatments.

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Publications Highlights

Genetic Ancestry Correlates with Somatic Differences in a Real-World Clinical Cancer Sequencing Cohort. Arora K, Tran TN, Kemel Y, Mehine M, Liu YL, Nandakumar S, Smith SA, Brannon AR, Ostrovnaya I, Stopsack KH, Razavi P, Safonov A, Rizvi HA, Hellmann MD, Vijai J, Reynolds TC, Fagin JA, Carrot-Zhang J, Offit K, Solit DB, Ladanyi M, Schultz N, Zehir A, Brown CL, Stadler ZK, Chakravarty D, Bandlamudi C, Berger MF. Cancer Discov. 2022 Nov 2;12(11):2552-2565. doi: 10.1158/2159-8290.CD-22-0312. PMID: 36048199; PMCID: PMC9633436.

The context-specific role of germline pathogenicity in tumorigenesis. Srinivasan P, Bandlamudi C, Jonsson P, Kemel Y, Chavan SS, Richards AL, Penson AV, Bielski CM, Fong C, Syed A, Jayakumaran G, Prasad M, Hwee J, Sumer SO, de Bruijn I, Li X, Gao J, Schultz N, Cambria R, Galle J, Mukherjee S, Vijai J, Cadoo KA, Carlo MI, Walsh MF, Mandelker D, Ceyhan-Birsoy O, Shia J, Zehir A, Ladanyi M, Hyman DM, Zhang L, Offit K, Robson ME, Solit DB, Stadler ZK, Berger MF, Taylor BS. Nat Genet. 2021 Nov;53(11):1577-1585. doi: 10.1038/s41588-021-00949-1. Epub 2021 Nov 5. PMID: 34741162; PMCID: PMC8957388.

Development of Genome-Derived Tumor Type Prediction to Inform Clinical Cancer Care. Penson A, Camacho N, Zheng Y, Varghese AM, Al-Ahmadie H, Razavi P, Chandarlapaty S, Vallejo CE, Vakiani E, Gilewski T, Rosenberg JE, Shady M, Tsui DWY, Reales DN, Abeshouse A, Syed A, Zehir A, Schultz N, Ladanyi M, Solit DB, Klimstra DS, Hyman DM, Taylor BS, Berger MF. JAMA Oncol. 2020 Jan 1;6(1):84-91. doi: 10.1001/jamaoncol.2019.3985. PMID: 31725847; PMCID: PMC6865333.

Tracking tumour evolution in glioma through liquid biopsies of cerebrospinal fluid. Miller AM, Shah RH, Pentsova EI, Pourmaleki M, Briggs S, Distefano N, Zheng Y, Skakodub A, Mehta SA, Campos C, Hsieh WY, Selcuklu SD, Ling L, Meng F, Jing X, Samoila A, Bale TA, Tsui DWY, Grommes C, Viale A, Souweidane MM, Tabar V, Brennan CW, Reiner AS, Rosenblum M, Panageas KS, DeAngelis LM, Young RJ, Berger MF, Mellinghoff IK. Nature. 2019 Jan;565(7741):654-658. doi: 10.1038/s41586-019-0882-3. Epub 2019 Jan 23. PMID: 30675060; PMCID: PMC6457907.

Mutational landscape of metastatic cancer revealed from prospective clinical sequencing of 10,000 patients. Zehir A, Benayed R, Shah RH, Syed A, Middha S, Kim HR, Srinivasan P, Gao J, Chakravarty D, Devlin SM, Hellmann MD, Barron DA, Schram AM, Hameed M, Dogan S, Ross DS, Hechtman JF, DeLair DF, Yao J, Mandelker DL, Cheng DT, Chandramohan R, Mohanty AS, Ptashkin RN, Jayakumaran G, Prasad M, Syed MH, Rema AB, Liu ZY, Nafa K, Borsu L, Sadowska J, Casanova J, Bacares R, Kiecka IJ, Razumova A, Son JB, Stewart L, Baldi T, Mullaney KA, Al-Ahmadie H, Vakiani E, Abeshouse AA, Penson AV, Jonsson P, Camacho N, Chang MT, Won HH, Gross BE, Kundra R, Heins ZJ, Chen HW, Phillips S, Zhang H, Wang J, Ochoa A, Wills J, Eubank M, Thomas SB, Gardos SM, Reales DN, Galle J, Durany R, Cambria R, Abida W, Cercek A, Feldman DR, Gounder MM, Hakimi AA, Harding JJ, Iyer G, Janjigian YY, Jordan EJ, Kelly CM, Lowery MA, Morris LGT, Omuro AM, Raj N, Razavi P, Shoushtari AN, Shukla N, Soumerai TE, Varghese AM, Yaeger R, Coleman J, Bochner B, Riely GJ, Saltz LB, Scher HI, Sabbatini PJ, Robson ME, Klimstra DS, Taylor BS, Baselga J, Schultz N, Hyman DM, Arcila ME, Solit DB, Ladanyi M, Berger MF. Nat Med. 2017 Jun;23(6):703-713. doi: 10.1038/nm.4333. Epub 2017 May 8. Erratum in: Nat Med. 2017 Aug 4;23 (8):1004. PMID: 28481359; PMCID: PMC5461196.

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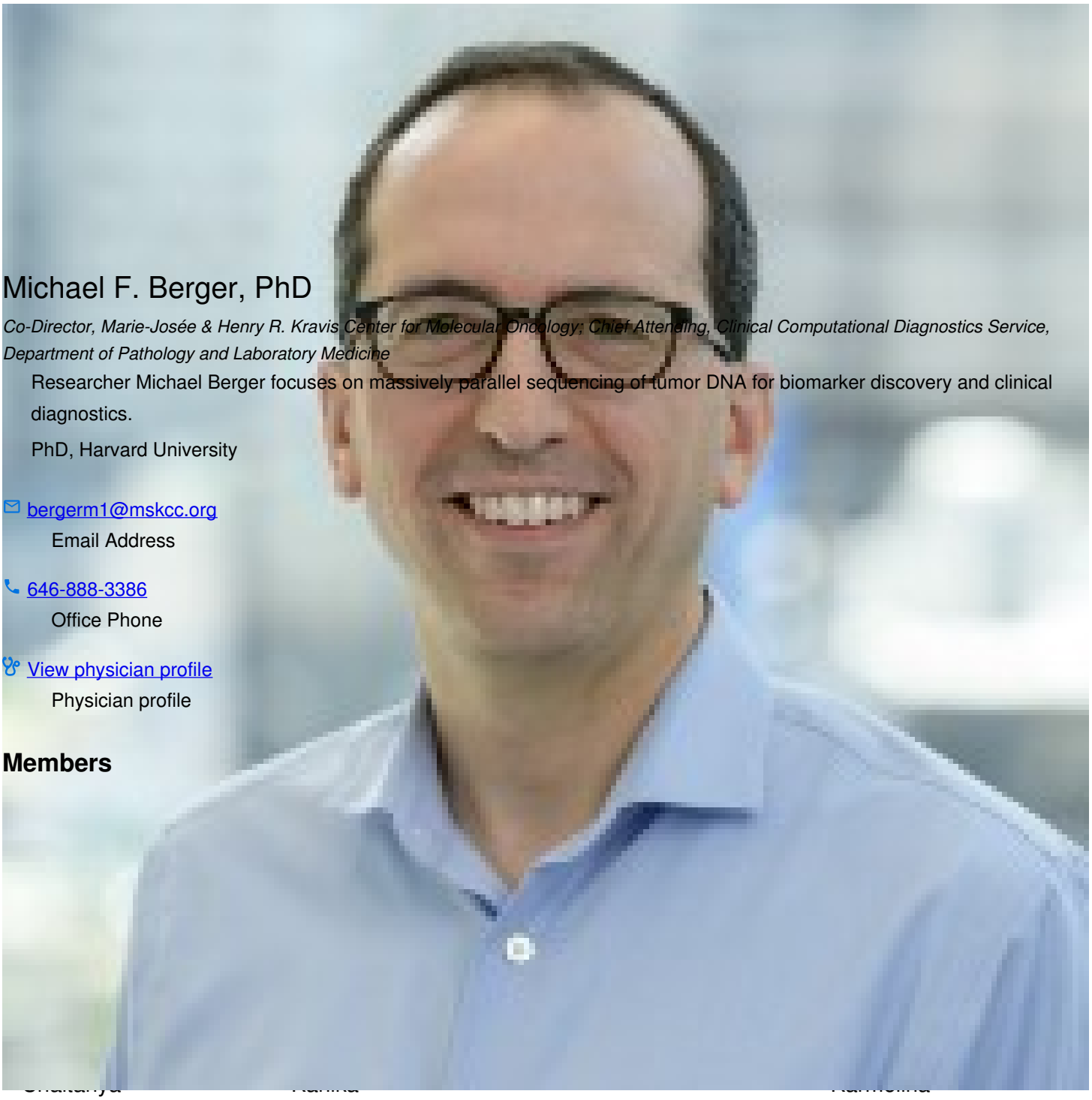
People



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Researcher Michael Berger focuses on massively parallel sequencing of tumor DNA for biomarker discovery and clinical diagnostics.

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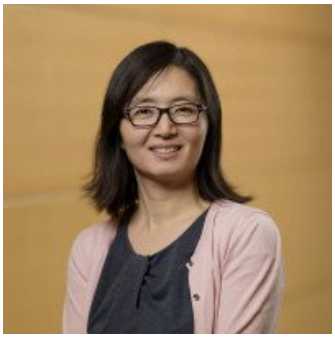

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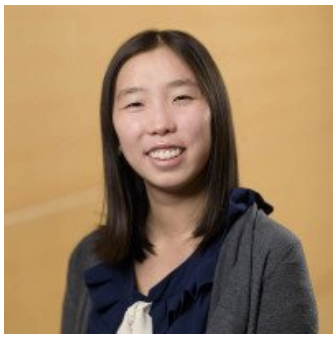

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MSK requires doctors and faculty members to report (“disclose”) the relationships and financial interests they have with external entities. As a commitment to transparency with our community, we make that information available to the public.

Michael F. Berger discloses the following relationships and financial interests:

AstraZeneca

Professional Services and Activities

JCO Precision Oncology

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Journal of Molecular Diagnostics

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