

Clifford J. Yudkoff, MD
496 Tennessee St, Apt 420, Memphis, TN 38103
(201)406-4927 • cyudkoff@uthsc.edu

Education

UNIVERSITY OF TENNESSEE/SEMMES-MURPHEY CLINIC

Neurosurgery Residency

Memphis, TN

Expected completion June 2030

SIDNEY KIMMEL MEDICAL COLLEGE

Candidate for Doctor of Medicine (M.D)

Philadelphia, PA

May 2023

- **Honors and Awards**

- Alpha Omega Alpha (AOA) National Medical Honor Society
- SKMC Department of Medicine Hobart Amory Hare Honor Society
- SKMC Department of Surgery George McClellan Honor Society
- SKMC Research Award

- USMLE Step 1 and 2 Passed

NORTHEASTERN UNIVERSITY

Bachelor of Science in Biochemistry

Boston, MA

December 2017

- **Honors and Awards**

- Magna Cum Laude
- Dean's List (All Semesters)
- University Honors Program

Research Experience

Department of Neurosurgery, Thomas Jefferson University

Clinical Researcher

Philadelphia, PA

December 2021 – Present

- *Spine Group* - Research predictors for outcomes after spinal cord injury, explore outcomes on early and late cranioplasty, and need for EVD or ICP monitoring in TBI
- *Vascular Group (Jabbour Group)* – Study outcomes in aneurysms treated with FRED vs Pipeline flow diversion, stroke outcomes after mechanical thrombectomy, and stroke association with COVID
- *Skull Base Group (Evans Group)* - Investigate use of exoscope in various neurosurgical disciplines and meningioma treatment parameters for radiation
- *Intracranial Tumor Database* - Investigate astrocytoma clinical outcomes and imaging predictors, establish database on astrocytoma for institutional summary

Department of Surgery, Thomas Jefferson University

Clinical Researcher, Bowne Research Group

Philadelphia, PA

August 2020 – August 2021

- Investigated implementation of an enhanced recovery after surgery pathway at TJUH
- Collaborated with GI and pathology departments to enable multidisciplinary studies
- Studied post-Whipple euglycemic diabetic ketoacidosis to characterize predictors and outcomes

Researcher, Krampitz Lab

November 2019 – August 2020

- Investigated the metastatic niche of disseminated pancreatic cancer cells to identify potential therapies
- Assessed the formation and progression of surgical adhesions with a focus on prevention
- Studied biomarkers for surgical frailty as a predictor of outcome and potential interventions
- Initiated and maintained database on patients undergoing pancreaticoduodenectomy

Editas Medicine

Research Associate, Pharmacology Preclinical Team

Cambridge, MA

July 2016 – July 2019

- Achieved successful filing of the EDIT-101 IND, a CRISPR gene editing strategy for the treatment of LCA10; responsible for initiating and designing preclinical studies, organizing IND-enabling studies with CROs, assay development and validation, molecular analysis of therapeutic efficacy, and FDA IND report write up

- Developed and optimized immunogenicity and tolerability assays, and collaborated with Allergan and FDA for assessment of PK/PD and safety of EDIT-101 for the Phase 1/2 clinical trial
- Led *in vivo* pharmacology for the HSV program to develop preclinical models for HSV-1 infection and latency, for assessment of PK/PD and biodistribution for the development of a CRISPR/Cas9 based therapy
- Developed a CRISPR/Cas9 editing approach as a molecular therapy for A1AT deficiency liver disease
- Evaluated LNP delivery mechanisms for CRISPR/Cas9 in *ex vivo* studies through biomarker response

Northeastern University, Department of Chemistry and Chemical Biology, Zhou Lab

Boston, MA

Undergraduate Researcher

September 2015 – July 2016

- Studied the identification and quantification of protein crosslinks via N-terminal labelling and MALDI/TOF
- Investigated protein N-terminal modifications to identify crosslinks and bioconjugation

Peer-reviewed Publications

Rossitto CP, **Yudkoff C**, Youssef D, Carrasquilla A, Carr MT, Oemke H, Tabani H, Hickman ZL, Kellner CP. Resection of Arteriovenous Malformation With Sonolucent Cranioplasty: 2-Dimensional Operative Video With 360° Virtual Reality Fly-Through. *Oper Neurosurg (Hagerstown)*. 2023 Apr 21. doi: 10.1227/ons.0000000000000686.

Patel PD, Khanna O, Gooch MR, Glener SR, Mouchtouris N, Momin AA, Sioutas G, Amllay A, Barsouk A, El Naamani K, **Yudkoff C**, Wyler DA, Jallo JI, Tjoumakaris S, Jabbour PM, Harrop JS. Clinical Outcomes After Ultra-Early Cranioplasty Using Craniectomy Contour Classification as a Patient Selection Criterion. *Oper Neurosurg (Hagerstown)*. 2023 May 5. doi: 10.1227/ons.0000000000000689.

Yudkoff CJ, Rossitto CP, Kellner CP. Minimally invasive intracerebral hemorrhage evacuation: A bibliometric analysis of current research trends. *Clin Neurol Neurosurg*. 2023 Apr;227:107672. doi: 10.1016/j.clineuro.2023.107672.

El Naamani K, **Yudkoff CJ**, Carreras A, Abbas R, Sioutas GS, Amllay A, Tjoumakaris SI, Gooch MR, Herial N, Rosenwasser RH, Jabbour P. Social Media and Neurosurgery: Insights from the Top 100 Neurosurgery Influencers on Twitter. *World Neurosurg*. 2023 Mar;171:e422-e431. doi: 10.1016/j.wneu.2022.12.023.

Mouchtouris N, Luck T, **Yudkoff C**, Hines K, Franco D, Al Saiegh F, Thalheimer S, Khanna O, Prasad S, Heller J, Harrop J, Jallo J. Initial Heart Rate Predicts Functional Independence in Patients With Spinal Cord Injury Requiring Surgery: A Registry-Based Study in a Mature Trauma System Over the Past 10 Years. *Global Spine J*. 2023 Feb 3:21925682231155127. doi: 10.1177/21925682231155127.

El Naamani K, Amllay A, Chen CJ, Capone S, Abbas R, Sioutas GS, Munoz A, **Yudkoff CJ**, Carreras A, Sambangi A, Hunt A, Jain P, Stine EA, Sathe A, Smit R, Yazbeck F, Tjoumakaris SI, Gooch MR, Herial NA, Rosenwasser RH, Zarzour H, Schmidt RF, El-Ghanem M, Jabbour PM. The Effect of COVID-19 Vaccines on Stroke Outcomes: A Single-Center Study. *World Neurosurg*. 2023 Feb;170:e834-e839. doi: 10.1016/j.wneu.2022.11.132.

Yudkoff C, Mahtabfar A, Piper K, Judy K. Safety and efficacy of salvage therapy with laser interstitial thermal therapy for malignant meningioma refractory to cesium-131 brachytherapy: illustrative case. *J Neurosurg Case Lessons*. 2022 Dec 5;4(23):CASE22379. doi: 10.3171/CASE22379. PMID: 36471578; PMCID: PMC9724005.

El Naamani K, Saad H, Chen CJ, Abbas R, Sioutas GS, Amllay A, **Yudkoff CJ**, Carreras A, Sambangi A, Hunt A, Jain P, Dougherty J, Tjoumakaris SI, Gooch MR, Herial NA, Rosenwasser RH, Zarzour H, Schmidt RF, Jabbour PM. Comparison of Flow-Redirection Endoluminal Device and Pipeline Embolization Device in the Treatment of Intracerebral Aneurysms. *Neurosurgery*. 2023 Jan 1;92(1):118-124. doi: 10.1227/neu.0000000000002148. Epub 2022 Sep 28. PMID: 36170173. *Also presented at JNIS in abstract form and CNS.*

Sholevar C, Torjani A, Kavanagh TR, **Yudkoff C**, Xiao K, Swaminathan V, Rshaidat H, Bowne WB, Krampitz GW, Nevler A, Yeo CJ, Lavu H. Euglycemic diabetic ketoacidosis (EDKA) after pancreaticoduodenectomy: An under-recognized metabolic abnormality with outcome implications. *Surgery*. 2023 Apr;173(4):888-893. doi: 10.1016/j.surg.2022.07.009. Epub 2022 Aug 24. PMID: 36028380.

Piper K, Yu S, Taghvaei M, Fernandez C, Mouchtouris N, Smit RD, **Yudkoff C**, Collopy S, Reyes M, Lavergne P, Karsy M, Prashant GN, Shi W, Evans J. Radiation of meningioma dural tail may not improve tumor control rates. *Front Surg*. 2022 Jul 4;9:908745. doi: 10.3389/fsurg.2022.908745.

Maeder ML, Stefanidakis M, Wilson CJ, Baral R, Barrera LA, Bounoutas GS, Bumcrot D, Chao H, Ciulla DM, DaSilva JA, Dass A, Dhanapal V, Fennell TJ, Friedland AE, Giannoukos G, Gloskowski SW, Glucksmann A, Gotta GM, Jayaram H, Haskett SJ, Hopkins B, Horng JE, Joshi S, Marco E, Mepani R, Reyon D, Ta T, Tabbaa DG, Samuelsson SJ, Shen S, Skor MN, Stetkiewicz P, Wang T, **Yudkoff C**, Myer VE, Albright CF, Jiang H. Development of a gene-editing approach to restore vision loss in Leber congenital amaurosis type 10. *Nat Med*. 2019 Feb;25(2):229-233. doi: 10.1038/s41591-018-0327-9.

Shen S, Sanchez ME, Blomenkamp K, Corcoran EM, Marco E, **Yudkoff CJ**, Jiang H, Teckman JH, Bumcrot D, Albright CF. Amelioration of Alpha-1 Antitrypsin Deficiency Diseases with Genome Editing in Transgenic Mice. *Hum Gene Ther*. 2018 Aug;29(8):861-873. doi: 10.1089/hum.2017.227.

Abstracts and Poster Presentations

Kareem El Naamani, MD; **Clifford J Yudkoff**, BS; Angeleah Carreras, BS, MA; Rawad Abbas, MD; Georgios S Sioutas, MD; Abdelaziz Amlly, MD; Stavropoula I Tjoumakaris, MD; Michael R Gooch, MD; Nabeel A Herial, MD,MPH; Robert H Rosenwasser, MD,MBA. (2022). Social Media and Medicine: Insights from the Top 100 Neurosurgery Influencers on Twitter. *Accepted at CNS*.

El Naamani, K., Amlly, A., Chen, C., Capone, S., Abbas, R., Sioutas, G., Munoz, A., **Yudkoff, C.**, Carreras, A., Sambangi, A., Hunt, A., Jain, P., Stine, E., Sathe, A., Smit, R., Yazbeck, F., Tjoumakaris, S., Gooch, M., Herial, N., Rosenwasser, R., Zarzour, H., Schmidt, R., El-Ghanem, M., Jabbour, P. The Effect of COVID-19 Vaccines on Stroke Outcomes: A Single-Center Study. (2022). *Accepted for CNS*

Baldassari MP, Doermann A, Khanna O, Chatterjee D, **Yudkoff C**, Barsouk A, Velagapudi L, Farrell C, Evans J, Andrews D, Judy K. (2021). An Institutional Summary of Anaplastic Astrocytoma. E-Poster - AANS Annual Scientific Meeting. August 2021, Orlando, FL.

Baldassari MP, Khanna O, Ye D, Chatterjee D, **Yudkoff C**, Velagapudi L, Henry T, Andrews D, Farrell C, Evans J, Judy K. (2021). Surgical Resection of Anaplastic Astrocytoma with Butterfly Distribution. E-Poster - AANS Annual Scientific Meeting. August 2021, Orlando, FL.

Doermann A, Baldassari MP, Chatterjee D, **Yudkoff C**, Velagapudi L, Andrews D, Farrell C, Evans J, Judy K. (2021). Apparent Diffusion Coefficients and Clinical Outcomes of Grades 1, 2, and 3 Astrocytoma. E-Poster - AANS Annual Scientific Meeting. August 2021, Orlando, FL.

Baldassari, M. P., Ye, D. Y., **Yudkoff, C.**, Doermann, A., Henry, T., Evans, J. J., ... & Judy, K. D. (2020). Several Molecular Markers Predict Clinical Outcomes After Surgical Resection of Anaplastic Astrocytoma. *Neurosurgery*, 67(Supplement_1), nyaa447_906.

Calogero, C., Chalikonda, D., **Yudkoff, C.**, Torjani, A., Kavanagh, T., Rshaidat, H., ... & Kistler, C. A. (2020). S0544 Endoscopic Management of Post-Pancreaticoduodenectomy Delayed Gastric Emptying. *Official journal of the American College of Gastroenterology/ ACG*, 115, S259.

Chao, T., Wang, Z., Bowne, W., **Yudkoff, C.**, Roadarmel, A., Torjani, A., ... & Jiang, W. (2021, March). KRAS-G12V/G12R Mutations are Associated with Improved Clinical Outcomes and Different Morphological Variants Compared to KRAS-G12D in Pancreatic Ductal Adenocarcinoma. *Laboratory Investigation* (Vol. 101, No. SUPPL 1, pp. 1036-1038).

Sholevar, C., Xiao, K., Swaminathan, V., Nevler, A., Kavanagh, T., Torjani, A., **Yudkoff, C.**, Krampitz, G.W., Bowne, W., Yeo, C.J. and Lavu, H., 2021. Su625 Euglycemic Diabetic Ketoacidosis (EDKA) After Pancreaticoduodenectomy: An Under-Recognized Metabolic Abnormality With Outcome Implications. *Gastroenterology*, 160(6), pp.S-929.

Kavanagh, T. R., **Yudkoff, C.**, Torjani, A., Krampitz, G. W., Bowne, W., Rshaidat, H., ... & Yeo, C. J. (2021). Expanding the Whipple Accelerated Recovery Pathway (WARP) To All Patients Undergoing Pancreaticoduodenectomy (PD). *Phase 1*. Paper 98. https://jdc.jefferson.edu/si_ctr_2023_phase1/98

Stefanidakis, M., Maeder, M., Bounoutas, G., **Yudkoff, C.**, Haskett, S., Chao, H., ... & Gloskowski, S. (2018, December). Preclinical assessment of in vivo gene editing efficiency, specificity, and tolerability of EDIT-101, an investigational CRISPR treatment for Leber congenital amaurosis 10 (LCA10). *Human Gene Therapy* (Vol. 29, No. 12, pp. A101-A101).

Stefanidakis, M., Maeder, M., Bounoutas, G., **Yudkoff, C.**, Chao, H., Giannoukos, G., ... & Baciu, P. (2018). Efficient in vivo editing of CEP290 IVS26 by EDIT-101 as a novel therapeutic for treatment of Leber congenital amaurosis 10. *Invest Ophthalmol Vis Sci*, 59.

Shen, S., Owens, C. M., Chao, H., **Yudkoff, C.**, Diner, B., Fusco, R., ... & Baciu, P. (2018, May). Treatment of Herpetic Keratitis with CRISPR/Cas9 Gene Editing in a Rabbit Disease Model. *Molecular Therapy* (Vol. 26, No. 5, pp. 128-128).

Jiang H, Stefanidakis M, Maeder M, Haskett S, Samuelsson S, Giannoukos G, Ciulla D, Marco E, **Yudkoff C**, Hopkins B, Nguyen D, Gloskowski S, Tillotson E, Wang J, Baciu P, Wilson CJ, Stetkiewicz P, Albright C. Evaluation of Tolerability and Immunogenicity of EDIT-101 Following Subretinal Injection in Non- human Primates. Presented at the American Society of Gene & Cell Therapy (ASGCT) 21st Annual Meeting, May 16 – 19, 2018.

Stefanidakis, M., Maeder, M., Bounoutas, G., Sanchez, M., Marco, E., Giannoukos, G., ... **Yudkoff, C.**, ... & Skor, M. (2017, December). Development of a subretinally delivered CEP290-specific CRISPR medicine for the treatment of Leber congenital amaurosis 10 (LCA10). *Human Gene Therapy* (Vol. 28, No. 12, pp. A52-A52).

Pending Publications

Chao, T., Bowne, W., **Yudkoff, C.**, Torjani, A., Swaminathan, V., Kavanagh, T., Roadarmel, A., Sholevar, C., Cannaday, S., Zhan, T., Krampitz, G., Lavu, H., Yeo, C., Peiper, S., Wang, Z., Jiang, W. *KRAS-G12V/G12R mutations are associated with improved clinical outcomes and distinct morphological variants compared to KRAS-G12D in pancreatic ductal adenocarcinoma.* (2023). *Journal of Pathology* (Under Review)

Abbas, R., Sweid, A., Salem, M., Atallah, E., El Naamani, K., Amllay, A., Sioutas, G., Sambangi, A., **Yudkoff, C.**, Herial, N., Tjoumakaris, S., Gooch, M., Zarzour, H., Schmidt, R., Rosenwasser, R. (2023). Predictors of Occlusion, Long-Term Outcomes, and Safety in a large cohort of 780 aneurysms treated with the Pipeline Embolization Device. *Journal of Neurointerventional Surgery* (Revise and Resubmit)

Mouchtouris, N., Luck, T., **Yudkoff, C.**, Locke, K., Andrews, C., Shah, O., Jallo, J. (2023). ICP-guided Therapy with an External Ventricular Drain for Severe Traumatic Brain Injury Reduces Mortality Compared to ICP Monitoring Alone. *World Neurosurgery* (Under Review)

Mouchtouris, N., Luck, T., Locke, K., Hines, K., Franco, D., **Yudkoff, C.**, Sivagaanesan, A., Heller, J., Prasad, S., Harrop, J., Jallo, J. (2023) Comparison of 5-item and 11-item Modified Frailty Indices as Predictors of Functional Independence in Patients with Spinal Cord Injury. *Global Spine Journal* (Under Review)

Naamani, K., Mastorakos, P., **Yudkoff, C.**, Abbas, R., Tjoumakaris, S., Gooch, M., Herial, N., Rosenwasser, R., Zarzour, H., Schmidt, R. (2023) Comparison of PED/PED Flex and PED Shield in the Treatment of Intracerebral Aneurysms. *Journal of Neurosurgery* (Under Review)

Naamani, K., Khanna, O., Mastorakos, P., Momin, A., **Yudkoff, C.**, Jain, P., Hunt, A., Pedapati, V., Syal, A., Lawall, C., Carey, P., El Fadel, O., Zakar, R., Ghanem, M., Muharremi, E., Jreij, G., Abbas, R., Amllay, A., Gooch, M., Herial, N., Jabbour, P., Rosenwasser, R. (2023) Predictors of Transfemoral Access Site Complications in Neuroendovascular Procedures: a Large Single-Center Cohort Study. *Clinical Neurology and Neurosurgery* (Revise and Resubmit)

Leadership Experiences

American Association of Neurological Surgeons (AANS) at SKMC

Vice President

Philadelphia, PA

June 2022 – June 2023

- Support president in organizing events, lecture series, and journal clubs and oversee other executive board members and sub-committee programs
- Creating neurosurgery immersion program for preclinical students to gain early exposure to neurosurgery, faculty and residents and introduce a longitudinal neurosurgical curriculum

Chi Chapter, Phi Chi Medical Fraternity

Member

President

Philadelphia, PA

July 2019 – June 2023

November 2019 – November 2020

- Led house meetings and arranged events to encourage bonding and mentoring between 1st thru 4th years
- Raised \$10,000 for cancer research and coordinated a successful coat drive for Project Home
- Managed E-board for house to ensure smooth operations
- Attended national meetings, upheld good standing with national chapter, awarded by national chapter

Sidney Kimmel Medical College Admissions Committee

Philadelphia, PA

Student Interviewer

September 2019 – September 2021

- Conducted interviews monthly with prospective students and provided write-up to committee for review

SKMC Office of Student Affairs

Philadelphia, PA

Orientation Leader

August 2020

- Organized orientation events for incoming first year students of the SKMC class of 2024

Northeastern University Club Running Team

Boston, MA

Field (Jumping and Throwing Events) Captain

September 2015 – September 2016

- Designed practice schedules and led workouts for members interested in field events
- Coached several members to achieve both personal and school records
- Competed in intercollegiate track and field meets against NCAA Division III and other club teams

Teaching Experience

MedSchoolCoach

Boston, MA

USMLE Step 1&2 Tutor

August 2022 – Present

Hobart Amory Hare Honor Society

Philadelphia, PA

Member and Peer Tutor

September 2021 – May 2023

Clinical Skills & Surface Anatomy Program, Sidney Kimmel Medical College

Philadelphia, PA

Tutor

August 2020 – May 2023

Northeastern University Honors Alumni Mentoring Program

Boston, MA

Alumni Mentor

January 2020 – Present

SKMC Mentor Program

Philadelphia, PA

Peer Mentor

August 2020- May 2023

Gibbon Surgical Society

Philadelphia, PA

Member

August 2019 – May 2023

Northeastern University Emergency Medical Services

Boston, MA

Member

September 2014 – May 2017

Volunteer Experience

JeffHOPE

Philadelphia, PA

Medical Team Volunteer

September 2019 – May 2023

Jefferson No One Dies Alone (NODA)

Philadelphia, PA

Pager Committee/Activation Coordinator

October 2019 – May 2023

Englewood Volunteer Ambulance Corps

Englewood, NJ

Crew Chief/EMT-B

May 2013 – May 2019

Boston Athletic Association Event Medic

Boston, MA

Medical Sweep Team

April 2016 – October 2019

Northeastern University Emergency Medical Services

Boston, MA

AHA BLS Instructor

September 2014 – November 2016

Personal Interests

Cooking and baking, F1 racing, weightlifting, rock climbing, boxing, track & field, biking, long-boarding