

## Olivia K. Provance, PhD

Department of Medical Oncology, Yale University School of Medicine

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### MAJOR FIELD OF RESEARCH

Cellular and molecular translational oncology  
Mechanisms of metastasis in solid tumors

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### CURRENT POSITION

08/2021— Postdoctoral Research Associate, Yale University, Dept. of Medical Oncology  
School of Medicine, Advisor: Lucia Jilaveanu, MD/PhD

### EDUCATION

08/2016-06/2021 PhD, Cancer Biology, University of Kansas School of Medicine, Kansas City, KS  
Dissertation title: "The functional role and regulation of interferon induced transmembrane protein-1 in triple-negative breast cancer"  
Advisor: Joan Lewis-Wambi, PhD

08/2010-08/2014 BA, Biology and Pre-medicine, William Jewell College, Liberty, MO  
Advisor: Tara Allen, PhD

### SKILLS

In vitro BSL II cell culture, proliferation/cytotoxicity (IC50), 2D colony formation, invasion, migration, co-culture, wound healing, cytotoxicity, ELISA, luciferase reporter, 3D cell culture/organoid, siRNA, tube formation, cell cycle

Cell line engineering Lentivirus (shRNA), CRISPR/Cas9

In vivo Primary and metastatic tumor cell injections, drug delivery (IP, oral gavage), live animal imaging, tumor growth studies, live animal blood collection, post-mortem blood and tissue processing, transgene mouse development

Immunoassays ELISA, Multi-color flow cytometry, cytokine profiling

Staining and Imaging Dual/multi-color immunofluorescence staining (cells and embedded tissues), fluorescent microscopy, immunohistochemistry staining

Molecular biology & Biochemistry PCR (qPCR, qRT-PCR), RNA/DNA extraction and quantification, gel electrophoresis, RNA sequencing, genotyping, iprotein isolation, western blot, co-immunoprecipitation

Data analysis/ Software GraphPadPrism, R, JMP, Transcriptome Analysis Console, Ingenuity Pathway Analysis, Gene Set Enrichment Analysis, FlowJo, MS Office (Word, Excel, Outlook, Powerpoint)

### PUBLICATIONS

1. **Provance, OK**, Djureinovic D, Kluger H, Jilaveanu LB. Programmed cell death-4 shapes the melanoma tumor microenvironment and response to immunotherapy. *Submitted*. 2025.

2. **Provance OK**, Won HS, Escher TE, Lewis-Wambi J. IFITM1 mediated induction of XBP1 regulates atorvastatin response in triple negative breast cancer cells. In preparation.
3. **Provance OK**, Oria VO, Tran TT, Caulfield JI, Zito CR, Aguirre-Ducler A, Schalper KA, Kluger HM, Jilaveanu LB. Vascular mimicry as a facilitator of melanoma brain metastasis. *Cellular and Molecular Life Sciences*. 2024 Apr 18;81(1):188. PMID: 38635031.
4. Oria VO, Zhang H, Zito CR, Rane CK, Ma XY, **Provance OK**, Tran TT, Adeniran A, Kluger Y, Sznol M, Bosenberg MW, Kluger HM, Jilaveanu LB. Coupled fibromodulin and SOX2 signaling as a critical regulator of distant metastasis initiation in melanoma. *Cellular and Molecular Life Sciences*. 2022 Jun 23;79(7):377. PMID: 35737114.
5. **Provance OK**, Geanes ES, Lui AJ, Holloran SH, Roy A, Gunewardena S, Weir S, Lewis-Wambi J, Disrupting interferon-alpha and NF-kappaB crosstalk suppresses IFITM1 expression attenuating triple-negative breast cancer progression. *Cancer Letters*. 2021 Aug 28;514:12-29. Epub 2021 May 20. PMID: 34022283.
6. **Provance OK**, Lewis-Wambi J, Deciphering the role of interferon alpha signaling and microenvironment crosstalk in inflammatory breast cancer. Review. *Breast Cancer Research*. 2019: 21:59.

## FUNDING / GRANTS

07/2023-06/2024	Renewal, NIH 5TL1TR001864-08 Yale Center for Clinical Investigation Post-Doctoral Fellowship (Provance, OK) Role: TL1 Postdoctoral Research Fellow Site PI: Lloyd Cantley, MD/PhD Funded salary support: 100%
07/2022-06/2023	NIH 5TL1TR001864-07 Yale Center for Clinical Investigation Post-Doctoral Fellowship (Provance, OK) Role: TL1 Postdoctoral Research Fellow Site PI: Lloyd Cantley, MD/PhD Funded salary support: 100%
2019-2020	Biomedical research training program (B RTP) Fellowship, University of Kansas School of Medicine

## AWARDS AND SCHOLARSHIPS

### *International/National/Regional*

2023	TL1 Blue Ribbon Award, Association for Clinical and Translational Science (ACTS) Translational Science Conference, Washington DC
2022	BioKansas Innovations Festival Travel Award to present at the Innovation Festival's Mechanisms of Disease Conference, Kansas City, MO
2020	Kansas City Central Exchange STEMMy Student Achiever Award, Kansas City MO
2020	BioKansas Scholarship, Capitol Graduate Research Summit, Topeka KS
2020	University of Kansas Medical Center Award, Capitol Graduate Research Summit, Topeka KS
2014	Academic Excellence Award, Great Lakes Valley Conference Council of Presidents',
2013	All-Region Honorable Mention Midfielder Scholar, National Soccer Coaches Association of America

### *University*

2021	T32 Cancer Biology Research Training Program Scholar, Yale School of Medicine
2021	Honors status for dissertation and defense, KU School of Medicine, Dept. of Cancer Biology
2020	KUCC Research Week Travel Award (\$200), University of Kansas Cancer Center
2019	Professional Development Travel Award (\$500), KUMC Office of Graduate Studies
2019	PhD Research Medal Award, Office of Graduate Studies, University of Kansas School of Medicine
2019	Travel grant awarded (\$400), KUMC Student Governing Council

2019 Best Overall Presentation, University of Kansas Medical Center Student Research Forum  
 2019 Best Oral Presentation in Platform, KU School of Medicine, Student Research Forum,  
 2018 Honors for Comprehensive Exam, KU School of Medicine, Dept. of Cancer Biology  
 2018 Travel grant (\$500), University of Kansas Cancer Biology Department  
 2014 Outstanding Senior Bio. Major, Dr. Burnell Landers Award, William Jewell College  
 2011-2014 Tri-beta Biological Honors Society  
 2011-2014 Scholar athlete, maintained >3.3 GPA throughout season, William Jewell College  
 2011-2014 Dean's list, William Jewell College  
 2010-2014 ONEOK Scholarship, Maintained through academic performance  
 2010-2014 Women's Soccer Scholarship, William Jewell College

## RESEARCH APPOINTMENTS

05/2017-06/2021 PhD Candidate, Department of Cancer Biology, University of Kansas Medical Center, Kansas City, KS  
 03/2017-05/2017 Graduate Research Assistant, Department of Pharmacology and Toxicology, University of Kansas Medical Center, Kansas City, KS  
 01/2017-03/2017 Graduate Research Assistant, Department of Cancer Biology, University of Kansas Medical Center, Kansas City, KS  
 10/2016-12/2016 Graduate Research Assistant in Molecular and Integrative Physiology, University of Kansas Medical Center, Kansas City, KS  
 07/2015-07/2016 Bioengineering Research Assistant, University of Kansas Medical Center, Kansas City, KS  
 05/2012-05/2014 Undergraduate Research Assistant in Molecular Biology, William Jewell College, Liberty MO & Kansas City University, Kansas City MO

## INVITED PRESENTATIONS

2025 "YAP/TAZ dependent tumor cell vasculogenesis in melanoma brain metastasis," Yale SPORE  
 2020 "Interferon Induced Transmembrane Protein-1 Plays a Vital Role in Triple-Negative Breast Cancer and Can Be Targeted by the Naturally Derived Compound Parthenolide." Capitol Graduate Research Summit, Topeka, KS  
 2019 "Deciphering the role of interferon alpha signaling and microenvironment crosstalk in inflammatory breast cancer" 5<sup>th</sup> Annual Midwest Tumor Microenvironment Conference, University of Notre Dame  
 2019 "IFITM1 potentiates the aggressive phenotype of triple-negative inflammatory breast cancer and can be targeted by the naturally derived NFκB inhibitor, parthenolide." KU School of Medicine, Graduate Student Appreciation Week, Kansas City KS  
 2019 "Uncovering the role of STAT2/IRF9 driven interferon signaling in triple-negative inflammatory breast cancer." RareKC Summit, Kansas City  
 2019 "Significance of interferon alpha signaling and interferon inducible transmembrane protein-1 expression in inflammatory breast cancer." Biomedical Research Training Program Symposium. KU School of Med

## DEPARTMENTAL TALKS

2021 Yearly (2017-2021) Research in Progress seminars to University of Kansas Cancer Center (Podium)  
 2020 "IFITM1 as a potential biomarker and therapeutic target for a subset of triple-negative breast cancers." University of Kansas Cancer Biology Program Retreat (3-minute Thesis)  
 2019 "IFITM1 potentiates the aggressive phenotype of TNBC and can be targeted by the naturally derived compound parthenolide." University of Kansas Cancer Center Research Symposium (Podium)  
 2020 "Disrupting interferon-alpha and NF-kappaB crosstalk suppresses IFITM1 expression attenuating triple-negative breast cancer aggression." University of Kansas Cancer Center Research Week (Podium)  
 2019 "Targeting IFITM1 in triple-negative breast cancer" (Mentee presentation). University of Kansas Summer Undergraduate Research Program (Poster)

## CONFERENCE ABSTRACTS

2025 "Vascular mimicry as a facilitator of melanoma brain metastasis." Yale Post-doc Symposium (Poster)

- 2024 “Loss of PDCD4 augments antitumor immune activity in melanoma.” Robert. S. Sherwin Yale Center of Clinical Investigation All Scholar Day, Yale University, May 2024 (Poster)
- 2023 “The significance of PDCD4 in melanoma brain metastasis.” Yale-Rockefeller Day Symposium, New York, NY (Poster)
- 2023 “The clinical significance of PDCD4 in melanoma brain metastasis.” Association for Clinical and Translational Science Conference, Washington DC (Poster)
- 2019 “Parthenolide exerts a cytotoxic effect in triple-negative breast cancer cells through interrupting interferon-alpha signaling.” American Society of Cell Biology (ASCB), Washington DC (Poster)
- 2018 “Uncovering the role of STAT2/IRF9 driven interferon signaling in triple-negative inflammatory breast cancer” University of Kansas Cancer Center Research Symposium (Poster)
- 2018 “A novel role for IFITM1 in inflammatory breast cancer.” University of Kansas Student Research Forum (Podium)
- 2018 “Targeting interferon induced transmembrane protein-1 (IFITM1) attenuates the aggressive phenotype of inflammatory breast cancer. American Association for Cancer Research Annual Meeting. Chicago, April 2018 (Poster)
- 2017 “A novel role for interferon induced transmembrane protein-1 (IFITM1) in inflammatory breast cancer” University of Kansas Cancer Center Research Symposium (Poster)

### **MENTORSHIP ROLES**

- 2023-2024 Laboratory Mentor, Post-doctoral Associate, Yale School of Medicine
- 2019-2020 Laboratory Mentor, MD/PhD International Visiting Scholar, KU School of Medicine
- 2019 Laboratory Mentor, Cancer Biology Visiting Scholar Program, KU School of Medicine
- 2017 Laboratory Mentor, K-IMBRE Scholars, KU School of Medicine

### **SERVICE LEADERSHIP**

- 2018-Present Alumni Ambassador, William Jewell College, Liberty MO
- 2021-2024 Graduate Representative, BioKansas Talent Development & Education Committee
- 2018-2022 William Jewell College Presidential Scholar Mentor, Liberty, MO
- 2019-2021 Cancer Biology Student Society, University of Kansas School of Medicine
  - I founded the society to drive the collaboration among graduate students and to enhance the student research experience by facilitating career development, and establishing funding opportunities
  - Collaborated with faculty to fundraise for the Society, generating enough support to cover travel expenses for two students annually.
- 2018-2021 Student Representative for Cancer Biology Society, Graduate Education Committee
- 2018-2021 Graduate Student Council Vice President (2020-2021) and Treasurer (2019-2020)
  - Spearheaded initiatives to improve student engagement and advocacy across multiple graduate programs, contributing to an enhanced interdepartmental student environment
  - Managed a budget of \$4,000 ensuring fiscal responsibility and transparent financial reporting for student-led initiatives and funding requests
  - Served as the student representative in the University wide Research Advisory Council formed to ensure efficient and compliant research efforts
- 2018-2020 Interprofessional Committee, Student Governing Council
- 2018-2020 Senator, Student Governing Council, KUMC

### **PUBLIC OUTREACH**

- 2018 Event Coordinator, American Cancer Society Hope Lodge Dinner
- 2017 Brain Discovery Fair Volunteer; SFN-KC
- 2017 Organizer, Brain Bee; An event for high school students to compete in neuroscience knowledge; SFN-KC
- 2017 Executive committee, Society for Neuroscience Kansas City (SFN-KC)
- 2016 Walk for MS Advocacy Volunteer; Multiple Sclerosis Society, Mid-America Chapter
- 2016 Multiple Sclerosis Society Mid-America Chapter, Multiple Sclerosis Society, Kansas City, MO, Society

**PEER REVIEWER**

2025— Nature, npj Breast Cancer

2025— Springer Nature, Journal of Hematology and Oncology

**MEDIA COVERAGE**

2020 7<sup>th</sup> Annual STEMMy Award Recipient, [Central Exchange, Kansas City](#)

**PROFESSIONAL ORGANIZATIONS**

Yale Post-doctoral Association

American Association of Cancer Research

American Society of Cell Biology

Graduate Women in Science