

Carlo C. Maley

Curriculum Vitae

Prepared: 9/8/17

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EDUCATION:

1993-98	Massachusetts Institute of Technology (Rodney Brooks at MIT and Michael Donoghue at Harvard)	Ph.D.	Computer Science
1991-93	University of Oxford	M.Sc.	Zoology
1987-91	Oberlin College, Oberlin, OH	B.A.	Summa Cum Laude, Computer Science & Psychology

PRINCIPAL POSITIONS HELD:

2015-now	Arizona State University	Associate Professor	School of Life Sciences
2014-now	Institute of Cancer Research, London	Associate Director ¹	Centre for Evolution and Cancer
2015-now	St. Joseph's Hospital and Medical Center	Research Professor	Norton Thoracic Institute, Phoenix
2010-15	University of California, San Francisco	Adjunct Associate Professor	Surgery
2007-10	University of Pennsylvania	Member	Cellular and Molecular Biology Graduate Group
2005-10	University of Pennsylvania	Member,	Genomics & Computational Biology Graduate Group,
2005-10	The Wistar Institute	Assistant Professor	Oncogenesis
2000-05	Fred Hutchinson Cancer Research Center	Staff Scientist	Human Biology
1998-2000	University of New Mexico	Postdoc	Computer Science
1998	Harvard University	Postdoc	Organismal and Evolutionary Biology

¹. Role as Associate Director of the Centre for Evolution and Cancer at ICR, London provides a bridge to one of the world's best cancer research centers and has provided a means to submit joint research grants (e.g., two NIH U54 proposals of \$7.5M directs each). The ICR provides no salary but covers occasional travel costs to London and supports two postdocs co-mentored with an ICR faculty member.

HONORS AND AWARDS: *[All inclusive, most recent last]*

1991	Graduated Oberlin College <i>summa cum laude</i>
1991-1993	Marshall Scholarship
2000-2001	Alfred P. Sloan Fellowship in Computational and Molecular Biology
2001	NIGMS Fellowship Award (declined)
2001-2006	NCI Howard Temin Award (K01)
2003	AACR Rodger C. Haggitt Award
2008	First winner of the Landon AACR Innovator Award for Cancer Prevention Research
2013-2014	Fellow of the Berlin Institute for Advanced Study (Wissenschaftskolleg zu Berlin)

KEYWORDS/AREAS OF INTEREST:

Cancer, somatic evolution, neoplastic progression, therapeutic resistance, cancer prevention, genomics, evolutionary biology, computational biology, agent-based modeling, Barrett's esophagus, breast cancer, acute myeloid leukemia, bladder cancer, translational medicine.

INVITED PRESENTATIONS *[last 5 years]*

INTERNATIONAL

Cancer Evolution, CRUK Marshall Symposium, West Sussex, UK, 2017 (invited talk)
Across Tumor Heterogeneity and Evolution in Cancer: from in Silico studies to Clinical Impact, Barcelona, Spain, 2017 (plenary talk)
Evolution and Ecology of Cancer Summer School, Wellcome Genome Campus, Hinxton, UK, 2016 (invited talk)
Ecology and Evolution Seminar Series, Silwood Park, Imperial College London, UK 2015 (invited talk)
Symposium on Peto's Paradox, Institute of Cancer Research London, UK 2015 (invited introductory talk)
Symposium on Evolution and Cancer, Champalimaud Foundation, Lisbon, Portugal, 2014 (invited talk)
Gert Riethmüller Symposium, Munich, Germany, 2014 (invited talk)
Wissenschaftskolleg zu Berlin, Berlin, Germany, 2014 (invited talk)
Annual Meeting of the German, Austrian and Swiss Societies for Hematology and Medical Oncology, Vienna, Austria, 2013 (invited talk)
Institute of Cancer Research, London, England, 2013 (invited talk)
Joque Monod Conference - Ecological and Evolutionary Perspectives in Cancer, Roscoff, France, 2013
National Cancer Research Institute Cancer Conference, Liverpool, England, 2012 (invited talk)
Cancer Research UK, London, England, 2012 (invited talk)

NATIONAL

National Cancer Institute Think Tank on a Pre-Cancer Atlas, Rockville, MD 2017 (invited talk)
CSBC-PSO Mathematical Oncology Meeting, Scottsdale, AZ 2017 (plenary talk)

International Society of Evolutionary Medicine and Public Health, Durham, NC, 2016
(invited talk)

Third International Biannual Evolution and Cancer Conference, San Francisco, CA 2015
(invited talk)

Personalized Medicine Conference, Tucson, AZ 2015 (invited talk)

American College of Veterinary Surgeons, Nashville, TN 2015 (invited talk)

Conference on Complex Systems, Tempe, AZ 2015 (invited talk)

American Society for Clinical Oncology, Chicago, IL 2015 (invited talk)

American Association for Cancer Research Annual Meeting, Philadelphia, PA 2015 (invited talk)

International Society for Evolution, Medicine and Public Health Annual Meeting, Tempe AZ 2015 (invited talk)

Physical Sciences Oncology Alliance, Houston, TX 2015 (invited talk)

Second International Biannual Evolution and Cancer Conference, San Francisco, CA 2013
(introductory plenary talk)

Biological Mechanisms of Evolution, Gordon Research Conference, Easton, MA 2013
(invited talk)

Evolution and Comparative Oncology Minisymposium, U. Utah, Salt Lake City, UT 2013
(invited talk)

AACR 2013 Annual Conference, Washington DC 2013 (invited seminars, session chair)

Evolutionary Medicine Distinguished Seminar, Arizona State U., Tempe AZ (invited seminar)

Lineberger Cancer Center, U. North Carolina, Chapel Hill, NC 2013 (invited seminar)

Ecology and Evolutionary Biology Departmental Seminar, Yale U., New Haven, CT 2012
(invited seminar)

Pathology Departmental Seminar, U. Pennsylvania, Philadelphia, PA 2012 (invited talk)

Evolutionary Medicine Seminar Series, U. Michigan, Ann Arbor, MI 2012 (invited seminar)

Evolutionary Medicine Summer School, Bar Harbor, ME, 2012 (invited talks)

Radiation Oncology Seminar Series, Johns Hopkins, Baltimore, MD (invited talk)

Biology Seminar Series, Johns Hopkins, Baltimore, MD (invited talk)

Physical Sciences Oncology Seminar Series, Arizona State U., Tempe, AZ, 2012 (invited seminar)

Hem/Onc research talks, Mayo Clinic, Scottsdale, AZ, 2012 (invited talk)

Special Seminar, Translational Genomics Research Institute, Phoenix, AZ, 2012 (invited talk)

REGIONAL AND OTHER INVITED PRESENTATIONS

Wellbeing Commons, Tempe, AZ 2017 (invited lightning talk)

Cooperation and Conflict Symposium, Tempe, AZ, 2017 (invited talk)

Wiseguide, Scottsdale, AZ, 2017 (invited talk)

GBM AGILE Think Tank and Workshop, Phoenix, AZ, 2016 (invited talk)

Tucson Symposium, Tucson, AZ 2015 (invited talk)

Cancer Grand Rounds, Mayo Cancer Center AZ, Scottsdale, AZ 2015 (invited grand rounds)

Tumor Heterogeneity Symposium, Stanford University, Palo Alto, CA 2014 (plenary talk)

Novartis Oncology, Emeryville, CA, 2013 (invited seminar)

Evolutionary Medicine Symposium, Stanford U., Palo Alto, CA, 2012 (invited talk)

GOVERNMENT and OTHER PROFESSIONAL SERVICE:

2017	National Cancer Institute	Special Emphasis Panel reviewer of the Cancer Drug Resistance and Sensitivity Center (U54) applications
2017	National Cancer Institute	Think Tank to develop a Pre-Cancer Atlas
2016	National Cancer Institute	Ad Hoc reviewer for the Physical Sciences Oncology Centers U01 study section
2015	National Cancer Institute	Ad Hoc reviewer for Cancer Systems Biology Consortium (U54) study section
2013	Center for Evolution and Cancer	Organized the Second International Biannual Evolution and Cancer Conference
2011	Center for Evolution and Cancer	Organized the First International Biannual Evolution and Cancer Conference
2010	National Cancer Institute	Think Tank: Rethinking the Role of Infectious Agents in Cancer
2010	National Cancer Institute	Reviewer of the NCI's Division of Cancer Prevention's Chemoprevention Agent Development Research Program (CADRG)
2009-10	National Cancer Institute	NCI-F Review Committee (K99/R00 & T32's)
2009	National Cancer Institute	Presented to the NCI Executive Committee Retreat
2008	National Cancer Institute	Barrett's Esophagus Translational Research (BETR) Working Group
2008	Santa Fe Institute	Working group for integrating evolutionary theory into cancer biology
2008	National Cancer Institute	Think Tank: Physical Sciences-Based Frontiers in Oncology: Evolution and Evolutionary Theory and Cancer
2008	National Cancer Institute	Thank Tank: Physical Sciences-Based Frontiers in Oncology: The Coding, Decoding, Transfer, and Translation of Information in Cancer
2006	National Cancer Institute	Translational Research Working Group Roundtables I & II
2006	National Institutes of Health	National Commission on Digestive Diseases

RESEARCH

GRANTS

CURRENT

4. R01 CA 140657 renewal (Dr. C. Maley, PI)	8/1/14-7/31/19
NIH/NCI	\$1,443,958, total budget
Modeling Neoplastic Progression in Barrett's Esophagus	\$742,235 to the Maley lab
3. P01 CA 091955 (Dr. Brian Reid, PI)	4/1/14-3/30/19
NIH/NCI (Dr. C. Maley Co-I)	\$208,952, total sub-contract budget

Barrett's Esophagus: Predictors of Progression	\$208,952 to the Maley lab
2. R01 CA185138 (Drs. Carlo Maley and Shelley Hwang Co-PIs) NIH/NCI (PQC3) Genomic and Microenvironmental Diversity as Drivers of Metastasis in DCIS	4/1/14-3/31/18 \$163,430, total sub-contract budget \$98,058 to the Maley lab
1. Breakthrough Award BC132057 (Drs. Carlo Maley & Shelley Hwang Co-PIs) DoD/Breast Cancer Research Program Genomic and Microenvironmental Diversity as Drivers of Progression in DCIS	6/1/14-5/31/19 \$2,390,410, total budget \$1,920,206 to the Maley lab (a separate award was given to the Hwang lab)

COMPLETED

15. R01 CA 170595 (Dr. Robert Gatenby, PI) NIH/NCI (Dr. C. Maley Co-I) Application of Evolutionary Principles to Maintain Cancer Control (PQ21)	7/1/12-6/30/17 \$720,584, total sub-contract budget \$84,448 to the Maley lab
14. R01 CA149566 (Dr. Martin Carroll, PI) NIH/NCI Stem Cells, Differentiation and Therapeutic Resistance in AML Co-investigator responsible for genomic sequencing and evolutionary analysis.	2/1/15-1/31/17 \$198,730 total budget \$198,730 to the Maley lab
13. R01 CA 140657 (Dr. C. Maley, PI) NIH/NCI Modeling Neoplastic Progression in Barrett's Esophagus	7/1/09-6/30/14 \$190,331 year 1 directs \$761,324 total directs
12. RSG-09-163-01-CNE (Dr. C. Maley, PI) AMERICAN CANCER SOCIETY Stem Cells, Mutation Rates and NSAIDs in Barrett's Esophagus	7/1/09-6/30/13 \$144,745 year 1 directs \$593,080 total directs
11. P01 CA 091955-07 (Dr. Brian Reid, PI) NIH/NCI Barrett's Esophagus: Predictors of Progression Leader of Project 3 Genetic Instability and co-leader of the Biostatistics and Evolutionary Analysis Core	8/13/07-6/30/12 \$77,881 year 1 directs to Maley lab \$339,555 total directs to Maley lab
10. N/A (Dr. C. Maley, PI) Bonnie J. Addario Lung Cancer Foundation Within-tumor genetic diversity in lung cancer	3/1/12-2/28/13 \$50,000 total directs to Maley lab
9. U54 CA 143803 (Dr. R. Austin, PI) NIH/NCI Pilot: A single cell genealogy assay to measure somatic evolution	9/1/11-8/31/12 \$42,071 total directs to Maley lab

8. N/A (Dr. C. Maley, PI)	1/1/09-12/31/10
MARTHA W. ROGERS CHARITABLE TRUST	\$12,500 directs to Maley lab/year
The Effects of Therapy on Cancer Stem Cells in AML Patients	\$25,000 total directs
7. R03 CA 137811-01 (Dr. C. Maley, PI)	9/17/08-8/31/10
NIH/NCI	\$50,000 directs to Maley lab/year
An Intra-Neoplasm Genetic Diversity Assay	\$100,000 total directs
6. 08-06-27-MALE (Dr. C. Maley, PI)	7/1/08-6/30/10
AMERICAN ASSOCIATION FOR CANCER RESEARCH	\$50,000 directs to Maley lab/year
Genetic Diversity within Intra-Epithelial Neoplasms and Cancer Prevention	\$100,000 total directs to Maley lab
5. R01 CA 119224-03 (Dr. G. Luebeck, PI)	9/1/05-8/31/09
NIH/NCI	\$14,334 directs to Maley lab/year
MSM Scales of Carcinogenesis: Cells, Crypts and Cancer Role: Co-investigator.	\$51,403 total directs to Maley lab
4. N/A (Dr. C. Maley, PI)	2/1/07-1/30/09
PHARMACEUTICAL RESEARCH & MANUFACTURERS OF AMERICA FOUNDATION	\$30,000 directs to Maley lab/year
Development of Microsatellite and Methylation Assays for Phylogenetics	\$60,000 total directs to Maley lab
3. P30 DK050306 (Dr. A. Rustgi, PI)	7/1/06-6/30/07
UNIVERSITY OF PENNSYLVANIA PILOT PROJECT	
Center for Molecular Studies in Digestive and Liver Diseases	\$10,000 total directs to Maley lab
Pilot project: Organotypic Tissue Culture of Barrett's Esophagus	
Pilot project PI.	
2. N/A (Dr. C. Maley, PI)	4/1/06-2/28/07
MCLEAN CONTRIBUTIONSHIP	\$20,895 total directs to Maley lab
Description: Purchase of high performance computing cluster for simulations and genomic analysis	
1. K01 CA89267 (Dr. C. Maley, PI)	4/1/01-3/31/06
NIH/NCI	\$146,750 directs to Maley/year
Evolutionary dynamics of Barrett's esophagus neoplasia	\$704,055 total directs to Dr. Maley

PUBLICATIONS

*Legend: In my field, the person who carried out the majority of the work is the first author, and the senior author, who was responsible for supervising the work, is listed last. However, almost all publications are multi-author collaborations, and it has become common for multiple first authors and multiple senior authors to share credit. To support collaborative science, there should no distinction in the actual listed order in these cases of shared credit. * indicates shared first authorship, and underlined names with † indicates shared senior authorship. I have noted my postdoctoral fellows with italics, graduate students in **bold**, and undergraduates are underlined. I have also added descriptions of my role in italics on the papers for which ASU was listed as my*

affiliation. For the journals, the IF is the 2015 impact factor according to Web of Science and the h5 is the h-index for the last five years for that journal according to google scholar.

Total Citations: 6,557

Current h-index: 38

PEER REVIEWED:

66. Tollis, M., Boddy, A. M., Maley, C. C. Peto's Paradox: How has evolution solved the problem of cancer prevention? BMC Biology 15:60, 2017. IF=6.8, h5=47
This is a question-and-answer paper. I drafted the initial questions to address, Dr. Tollis wrote the manuscript and then all co-authors edited it.
65. Maley, C.C., Aktipis, A., Graham, T.A., Sottoriva, A., Boddy, A.M., Janiszewska, M., Silva, A.S., Gerlinger, M., Yuan, Y., Pienta, K.J., Anderson, K.S., Gatenby, R., Swanton, C., Posada, D., Wu, C.-I., Schiffman, J.D., Hwang, E.S., Polyak, K., Anderson, A.R.A., Brown, J.S., Greaves, M., Shibata, D.: Classifying the Evolutionary and Ecological Features of Neoplasms. Nature Reviews Cancer, in press, 2017 IF=34, h5=125
This is a consensus statement. I led the consensus meeting, wrote the manuscript, and coordinated all the edits and revisions. I am the corresponding author.
64. Andor, N., Maley, C. C., Ji, H. P. Genomic Instability in Cancer: Teetering on the Limit of Tolerance. Cancer Research 77:2179-2185, 2017. IF=9.3, h5=131
I was invited to provide this review and recruited my co-authors to do it. Since I was the senior author on our Nature Medicine paper that inspired this review, I offered that Dr. Ji could be the senior author on this one. I outlined the paper, Dr. Andor wrote it, and we all edited it. Dr. Andor handled the revisions.
63. Shi, B., Grimm, L.J., Mazurowski, M.A., Baker, J.A., Marks, J.R., King, L.M., Maley, C.C., Hwang, E.S., Lo, J.Y: Can occult invasive disease in ductal carcinoma in situ be predicted using computer-extracted mammographic features? Academic Radiology, in press, 2017. IF=2, h5=33
I am the co-PI on the grant that funded this research. I provided feedback on the work as it was developing and edited the paper.
62. Lote, H.*, Spiteri, I.*, Ermini, L.*, Vatsiou, A., Roy, A., McDonald, A., Maka, N., Balsitis, M., Bose, N., Simbolo, M., Mafficini, A., Lampis, A., Hahne, J.C., Trevisani, F., Eltahir, Z., Mentrasti, G., Findlay, C., Kalkman, E.A.J., Punta, M., Werner, B., Lise, S., Aktipis, A., Maley, C. C., Greaves, M., Braconi, C., White, J., Fassan, M., Scarpa, A., Sottoriva, A., Valeri, N.: Carbon dating cancer: defining the chronology of metastatic progression in colorectal cancer. Annals of Oncology, 28:1243-1249, 2017. IF=9, h5=105
I co-supervise Dr. Ermini, a co-first author on this paper, and provided feedback on his work.
61. Fortunato, A., Boddy, A., Mallo, D., Aktipis, A., Maley, C. C. †, & Pepper, J. W. †: Natural Selection in Cancer Biology: From Molecular Snowflakes to Trait Hallmarks. Cold Spring Harbor Perspectives in Medicine, a029652, 2016. IF=5, h5=68
I was asked to contribute this paper to a special issue. I generated the idea and recruited Dr. Pepper who is also an expert in this field. I wrote about 40% of the paper, the rest was written by Drs. Fortunato and Pepper, with editing and minor contributions from the other authors. I edited the entire manuscript. I offered to Dr. Pepper that we share senior authorship, and because he is trying to re-enter academia, that he could be listed last.
60. Martinez, P., M. R. Timmer, C. T. Lau, S. Calpe, M. del Carmen Sancho-Serra, D. Straub, A. Baker, S. L. Meijer, F. J. W. ten Kate, R. C. Mallant-Hent, A. H. J. Naber, A. H. A. M. van Oijen, L. C. Baak, P. Scholten, C. J. M. Böhmer, P. Fockens, J. J. G. H. M. Bergman, C. C. Maley†, T. A. Graham† and K. K. Krishnadath†: Longitudinal single cell analysis

- reveals evolutionary stasis and predetermined malignant potential in non-dysplastic Barrett's esophagus. *Nature Communications*, 7:12158, 2016. IF=11, h5=164
The data for this study was collected by the Krishnadath lab. She approached me to carry out the evolutionary analyses. I enlisted my ex-postdoc, Dr. Graham whose postdoc, Dr. Martinez, carried out the analyses under our joint direction. The paper was written by Drs. Martinez and Timmer, with editing by me and the other senior co-authors.
59. Andor, N., Graham, T.A., Jansen, M., Xia, L.C., Aktipis, C.A., Petritsch, C., Ji, H.P.†, Maley, C.C.† : Pan-cancer analysis of the extent and consequences of intra-tumor heterogeneity. *Nature Medicine*, 22:105-13, 2016. IF=30, h5=160
This work was done by Dr. Andor. She, Dr. Graham, and I came up with the idea to apply Dr. Andor's methods to the cancer genome atlas. I directed the work of Dr. Andor who was also advised by Dr. Ji (her current postdoc mentor). Dr. Andor wrote the manuscript with substantial editing from me.
58. Kostadinov, R., Maley, C.C., Kuhner, M.K.: Bulk genotyping of biopsies can create spurious evidence for heterogeneity in mutation content. *PLoS Computational Biology*, 12:e1004413, 2016. IF=5, h5=75
These results generated from the model that my student, Dr. Kostadinov, developed for his dissertation with me. The research was carried out in collaboration with Dr. Kuhner, with my advice. I edited the manuscript which was written by Drs. Kostadinov and Kuhner.
57. Maley, C.C., Koelble, K., Natrajan, R., Aktipis, A., Yuan, Y.: An ecological measure of immune-cancer colocalization as a prognostic factor for breast cancer. *Breast Cancer Research*, 17:1-13, 2015. IF=5, h5=60
Dr. Yuan, the senior author performed the work. I contributed the ecological theory, suggested the appropriate statistics, and helped interpret the results. I co-wrote the manuscript with Dr. Yuan, and it was edited by the other co-authors.
56. Abegglen, L.M., **Caulin, A.F.**, Chan, A., Lee, K., Robinson, R., Campbell, M.S., Kiso, W.K., Schmitt, D.L., Waddell, P.J., Bhaskara, S., Jensen, S.T., Maley, C.C.†, Schiffman, J. D.†: Potential Mechanisms for Cancer Resistance in Elephants and Comparative Cellular Response to DNA Damage in Humans. *JAMA*, 314:1850-1860, 2015. IF=38, h5=189
This was the primary result of my student's, Dr. Caulin's, dissertation. I generated the initial idea and directed the research program. Dr. Caulin made the original discovery of extra copies of p53 in the elephant genome. She did all of the bioinformatics and genomics work, including the wet lab work of cloning out the genes and quantifying the RNA expression, under my supervision. I recruited Dr. Schiffman to add the functional characterization of the elephant cells, which was done by Dr. Abegglen and made all the difference in getting a high impact publication. Dr. Schiffman and I agreed to share senior authorship. He took the lead in shopping the manuscript around to the journals and corresponding with JAMA.
55. Li, X., Paulson, T.P., Galipeau, P.C., Sanchez, C.A., Liu, K., Kuhner, M.K., Maley, C.C., Self, S.G., Vaughan, T.L., Reid, B.J., Blount, P.L.: Assessment of esophageal adenocarcinoma risk using somatic chromosome alterations in longitudinal samples in Barrett's esophagus. *Cancer Prevention Research*, 8:845-56, 2015. IF=4, h5=56
This work was done in the Reid lab. I contributed and supervised the genetic diversity analyses that are one component of this paper. Thus I had a relatively minor role. The paper was written by Dr. Li and then edited by me and the other authors.
54. Timmer*, M.R., Martinez*, P., Lau, C.T., Westra, W.M., Silvia Calpe, Rygiel, A.M., Rosmolen, W.D., Meijer, S.L., ten Kate, F.J.W., Dijkgraaf, M.G.W., Mallant-Hent, R.C., Naber, A.H.J., van Oijen, A.H.A.M., Baak, L.C., Scholten, P., Böhmer, C.J.M., Fockens, P., Maley, C.C., Graham, T.A., Bergman, J.J.G.H.M., Krishnadath, K.K.: Derivation of Genetic Biomarkers for Cancer Risk Stratification in Barrett's Oesophagus: A Prospective

- Cohort Study. Gut, epub 2015. doi: 10.1136/gutjnl-2015-309642
53. Nunney, L., Maley, C.C., Breen, M., Hochberg, M.E., Schiffman, J.D.: Peto's paradox and the promise of comparative oncology. *Philosophical Transactions of the Royal Society of London B*, 370 (1673):20140177, 2015. IF=6, h5=85
This was the introductory paper of a special issue, co-authored by the editors of the special issue. I wrote the outline and then we shared equally in the writing of the manuscript. Because Dr. Schiffman was trying to establish a leadership role in the field of comparative oncology, we offered him the senior author position.
 52. Aktipis, C.A., Boddy, A.M., Jansen, G., Hibner, U., Hochberg, M.E., Maley, C.C., Wilkinson, G.S.: Cancer across the tree of life: Cooperation and cheating in multicellularity. *Philosophical Transactions of the Royal Society of London B*, 370 (1673):20140219, 2015. IF=6, h5=85
The original idea and research for this paper was shared equally among the authors who were a working group at the Institute for Advanced Study in Berlin (we split up the tree of life and each reviewed a branch of it). The manuscript was written primarily by three of us: me, Drs. Aktipis, and Wilkinson, with Dr. Aktipis taking the lead. Dr. Aktipis contributed most of the theory, and I contributed most of the application of that theory.
 51. **Caulin, A.F.**, Graham, T.A., Wang, L.-S., Maley, C.C.: Solutions to Peto's Paradox Revealed by Mathematical Modeling and Cross-Species Cancer Gene Analysis. *Philosophical Transactions of the Royal Society of London B*, 370 (1673):20140222, 2015. IF=6, h5=85
This paper is the combination of two chapters from my student's dissertation. As such, I generated the research program and supervised the work. Dr. Caulin wrote the paper and I edited it.
 50. Paguirigan, A.L., Smith, J., Meshinchi, S., Carroll, M., Maley, C.C., Radich, J.P.: Single-cell genotyping demonstrates complex clonal diversity in acute myeloid leukemia. *Science Translational Medicine*, 7:281re2, 2015. doi:10.1126/scitranslmed.aaa0763 IF=16, h5=125
This was the primary product from a grant that I developed with Drs. Carroll (PI), and Radich. The work was done in the Radich lab, with me as an advisor on how to interpret and analyze the data. I edited the paper.
 49. **Walther, V.**, Hiley, C.T., Shibata, D., Swanton, C., Turner, P.E., and Maley, C.C.: Can oncology recapitulate paleontology? Lessons from species extinctions. *Nature Reviews Clinical Oncology*, 12:273-285, 2015. doi:10.1038/nrclinonc.2015.12
 48. Alcock, J., Maley, C.C., Aktipis, C.A.: Is eating behavior manipulated by the gastrointestinal microbiota? Evolutionary pressures and potential mechanisms. *Bioessays*, 36:940-949, 2014 doi: 10.1002/bies.201400071.
 47. Li, X., Galipeau, P.C., Sanchez, C.A., Paulson, T.P., Arnaudo, J., Liu, K., Sather, C.L., Kostadinov, R.L., Odze, R.D., Kuhner, M.K., Maley, C.C., Self, S.G., Vaughan, T.L., Blount, P.L., Reid, B.J.: Temporal and Spatial Evolution of Somatic Chromosomal Alterations: A Case-Cohort Study of Barrett's Esophagus. *Cancer Prevention Research*, 7:114-127, 2014.
 46. Aktipis, C.A., Boddy, A.M., Gatenby, R.A., Brown, J.S., Maley, C.C.: Life history tradeoffs in cancer evolution. *Nature Reviews Cancer*, 13:883-892, 2013.
 45. **Kostadinov, R.L.**, Kuhner, M.K., Li, X., Sanchez, C.A., Galipeau, P.C., Paulson, T.G., Sather, C.L., Srivastava, A., Odze, R.D., Blount, P.L., Vaughan, T.L., Reid, B.J., Maley, C.C.: NSAIDs modulate clonal evolution in Barrett's esophagus. *PLoS Genetics*, 9:e1003553, 2013. PMID: PMC3681672
 44. *Datta, R.S.*, Gutteridge, A., Swanton, C., Maley, C.C., *Graham, T.A.*: Modeling the evolution of genetic instability during tumour progression. *Evolutionary Applications* 6:

- 20-33, 2013. PMID: PMC3567468
43. **Sprouffs, K.**, Aktipis, C.A., Radich, J.P., Carroll, M., Nedelcu, A.M., Maley, C.C.: An evolutionary explanation for the presence of cancer non-stem cells in neoplasms. *Evolutionary Applications*, 6: 92-101, 2013. PMID: PMC3567474
 42. Roche, B., Hochberg, M.E., **Caulin, A.F.**, Maley, C.C., Gatenby, R.A., Misse, D., Thomas, F.: Natural resistance to cancers: a Darwinian hypothesis to explain Peto's paradox. *BMC Cancer*. 12:387, 2012. PMID: PMC3488527
 41. **Sprouffs, K.**, *Merlo, L.M.F.*, Gerrish, P.J., Maley, C.C., Sniegowski, P.D.: Cancer in light of experimental evolution. *Current Biology*, 22:R762-71, 2012. PMID: PMC3457634
 40. Greaves, M. & Maley, C.C.: Clonal evolution in cancer. *Nature*. 481:306-313, 2012. PMID: PMC3367003
 39. Kosoff, R.E., Gardiner, K.L., *Merlo, L.M.F.*, **Pavlov, K.**, Rustgi, A.K., Maley, C.C.: Development and Characterization of an Organotypic Model of Barrett's Esophagus. *Journal of Cellular Physiology*. 2012. 227(6): p. 2654-2659. PMID: PMC3352665
 38. *Merlo, L.M.F.*, Kosoff, R.E., Gardiner, K.L., Maley, C.C.: An in vitro co-culture model of esophageal cells identifies ascorbic acid as a modulator of cell competition. *BMC Cancer*, 11:461, 2011. PMID: PMC3213018
 37. Martens, E.A., **Kostadinov, R.**, Maley, C.C., Hallatschek, O.: Spatial structure increases the waiting time for cancer. *New Journal of Physics, Focus Issue "Physics of Cancer"* 13:115014, 2011. PMID: PMC3375912
 36. Aktipis, C.A., Kwan, V.S.Y., Johnson, K.A., Neuberg, S.L., Maley, C.C.: Overlooking evolution: A systematic analysis of cancer relapse and therapeutic resistance research. *PLoS ONE*, 6(11):e26100, 2011.
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27. Maley, C. C. The Evolutionary Foundations of Cancer Research. In: C. C. Maley, M. Greaves (eds.), *Frontiers in Cancer Research*. Springer-Verlag, New York. pp. 1-16, 2016.
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I performed the review of the manuscript that led to a request for us to write this commentary. I then outlined the paper which was co-written by me and Dr. Chowell. I edited the full manuscript.
25. Schiffman, J. D., Schmitt, D. L. & Maley, C. C. TP53 Gene and Cancer Resistance in Elephants--Reply. *JAMA*, 315:1790-1791, 2016. doi:10.1001/jama.2016.0457
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24. Maley, C.C., E. Szabo, and B.J. Reid: Somatic Evolution in Neoplastic Progression and Cancer Prevention, in *Pre-Invasive Disease: Pathogenesis and Clinical Management*, R.C. Fitzgerald, Editor, 2011, p. 111-127.
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BOOKS

1. Maley, C. C. & Greaves, M. (eds.), *Frontiers in Cancer Research*. Springer-Verlag, New York. 2016.

OTHER CREATIVE ACTIVITIES

Led the committee that wrote the Wikipedia page on “Somatic Evolution.”

SERVICE

PROFESSIONAL ORGANIZATIONS

Memberships

2002-now	American Association for Cancer Research
2001-now	Society for the Study of Evolution

Service to Professional Organizations

2011-2015	National Evolutionary Synthesis Center	Advisory Board
2011	National Breast Cancer Coalition	Summit on Metastasis Prevention
2010	AACR Annual Meeting	Session Chair
2010	AACR Frontiers of Cancer Prevention Research	Program Committee
2009	AACR Annual meeting	Session Chair
2008	AACR Frontiers of Cancer Prevention Research	Session Chair
2007	AACR Frontiers of Cancer Prevention Research	Session Chair
2005-2006	American Association for Cancer Research	Task Force on Cancer Prevention

SERVICE TO PROFESSIONAL PUBLICATIONS:

2013-now	Editorial Board, Cancer Research (IF = 8.6)
2011-now	Senior Editor, Evolution, Medicine and Public Health (IF N/A)
2011-now	Editorial Board, Journal of Evolutionary Medicine (IF N/A)
2011-now	Review Editor, Frontiers in Computational Physiology and Medicine (IF N/A)
2008-now	Editorial Board, Cancer Prevention Research (IF = 3.9)

2005-now Ad hoc referee for Nature (1 paper in the past 5 years), Nature Reviews Cancer (2 papers in the past 5 years), New England Journal of Medicine (1 paper in the past 5 years), Journal of Clinical Investigations (3 papers in the past 5 years), PNAS (3 papers in the past 5 years), Gastroenterology (9 papers in the past 5 years), PLoS Medicine (2 papers in the past 5 years), PLoS Computational Biology (4 papers in the past 5 years), PLoS Biology (1 paper in the past 5 years), Genetics (2 papers in the past 5 years), Advances in Complex Systems (1 paper in the past 5 years), Molecular Biology and Evolution (1 paper in the past 5 years), In Silico Biology (1 paper in the past 5 years), IEE Proc. Systems Biology (1 paper in the past 5 years), Gut (2 papers in the past 5 years), Diseases of the Esophagus (2 papers in the past 5 years), Artificial Life (1 paper in the past 5 years), Journal of Theoretical Biology (1 paper in the past 5 years), Integrative and Comparative Biology (1 paper in the past 5 years), Cancer Informatics (1 paper in the past 5 years), Journal of the Royal Society Interface (1 paper in the past 5 years), Biology Direct (1 paper in the past 5 years), Journal of Cellular Physiology (2 papers in the past 5 years), Physical Biology (1 paper in the past 5 years), Cancer Research (2 papers in the past 5 years), Cancer Prevention Research (1 paper in the past 5 years), Oncogene (1 paper in the past 5 years), Physical Review Letters (1 paper in the past 5 years), Cell Proliferation (1 paper in the past 5 years), Evolutionary Applications (2 papers in the past 5 years)

