Eric Edward Bryant, PhD

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Education & Experience

2011—'18 **PhD, Columbia University**
Department: GSAS Biological Sciences
Thesis: Systems genetics of DNA damage tolerance — cisplatin, *RAD5* & CRISPR-mediated nonsense
Mentor: Rodney Rothstein
Co-Mentor: Alberto Ciccia
Committee: Songtao Jia, Elizabeth Miller & Matthew Weitzman
Keywords: Systems genetics / Genetic interaction networks / Landscape enrichment analysis / Synthetic lethality / DNA replication, recombination & repair / Chromosome mobility / CRISPR iSTOP / Bioinformatics / R programming

2009—'11 **Gene Oracle, Research Assistant**
Role: De-novo gene synthesis & degenerate codon library construction. Pipeline management and development.
Manager: Shannon Phan

2006—'09 **BS, University of California Los Angeles**
Department: UCLA Microbiology, Immunology & Molecular Genetics

2004—'06 **West Valley College**
Department: WVC Biology

Software

2019 **screenmill R package: capture, annotate, quantify, review and analyze time-series colony growth.** This package was used for colony quantification and interaction analysis in Bryant et al. 2019. A nice example analysis using screenmill can be found in Figure 1D.

2017 **iSTOP R package: design guides to introduce stop codons with CRISPR-mediated base editors.** This package was written to facilitate guide design for Billon et el. 2017. iSTOP can be configured to generate any desired missense mutation using any hypothetical base editor.

Teaching

2013 **Columbia University, Teaching Assistant for Molecular Biology**
Professors: Songtao Jia & Ron Prywes

2012 **Columbia University, Teaching Assistant for Cell Biology**
Professors: Elizabeth Miller & Chloë Bulinski

Awards

2018 Departmental distinction for PhD dissertation defense
2017—'18 TL1 NIH training grant, clinical and translational research
2016—'17 T32 NIH training grant, cancer biology
2013—'15 T32 NIH training grant, biological sciences
2013 James Howard McGregor award (student with unusual promise as a teacher of zoology)

Member

2012—'18 New York Academy of Sciences: Genome Integrity Discussion Group
2012—'18 Genetics Society of America
2006—pres. NOLS Alumni

Publications

Lead contribution

2019-09-26 Rad5 dysregulation drives hyperactive recombination at replication forks resulting in cisplatin sensitivity and genome instability.
Bryant EE, Šunjevarić I, Berchowitz L, Rothstein R, Reid RJD.
Nucleic Acids Research. 2019 Sep 26;47(17):9144—9159
PMID: 31350889 – PMCID: PMC6753471 – DOI: 10.1093/nar/gkz631

2019-01-09 Systems genetics of DNA damage tolerance – Cisplatin, *RAD5* & CRISPR-mediated nonsense.
Bryant EE.
Columbia University.
DOI: 10.7916/d8-k1d0-kb09

2017-09-21 CRISPR-mediated base editing enables efficient disruption of eukaryotic genes through induction of STOP codons.
Billon P*, **Bryant EE***, Joseph SA, Nambiar TS, Hayward SB, Rothstein R, and Ciccia A.
Molecular Cell. 2017 Sep 21;67(6):1068—1079.e4
PMID: 28890334 – PMCID: PMC5610906 – DOI: 10.1016/j.molcel.2017.08.008
*co-first authors

Supporting contribution

2019-10-01 DNA damage triggers increased mobility of chromosomes in G1 phase cells.
Smith MJ, **Bryant EE**, Joseph FJ, Rothstein R.
Molecular Biology of the Cell. 2019 Oct 1;30(21):2620—2625
PMID: 31483739 – PMCID: PMC6761769 – DOI: 10.1091/mbc.E19-08-0469

2018-09-01 Increased chromosomal mobility after DNA damage is controlled by interactions between the recombination machinery and the checkpoint.
Smith MJ, **Bryant EE**, Rothstein R.
Genes & Development. 2018 Sep 1;32(17-18):1242—1251
PMID: 30181361 – PMCID: PMC6120718 – DOI: 10.1101/gad.317966.118

2016-10-01 A synthetic dosage lethal genetic interaction between CKS1B and PLK1 is conserved in yeast and human cancer cells.
Reid RJD, Du X, Šunjevarić I, Rayannavar V, Dittmar J, **Bryant EE**, Maurer M, and Rothstein R.
Genetics. 2016 Oct 1;204(2):807—819
PMID: 27558135 – PMCID: PMC5068864 – DOI: 10.1534/genetics.116.190231