

**FRANCESCA STORICI, PhD  
CURRICULUM VITAE**

**STORICI, FRANCESCA**                      Professor  
School of Biological Sciences  
Georgia Institute of Technology

**I. Earned Degrees:**

B.S./M.S.	Biological Sciences	1993	<i>Summa cum Laude</i> , University of Trieste, Italy
Ph.D.	Molecular Genetics	1998	International School for Advanced Studies, Trieste, Italy

**II. Employment History:**

- Visiting Fellow, National Institute of Environmental Health Sciences, (NIH, DHHS) 1999-2004
- Research Fellow, National Institute of Environmental Health Sciences, (NIH, DHHS) 2004-2007
- Research Assistant Professor, University of North Carolina at Chapel Hill, School of Pharmacy's Division of Molecular Pharmaceutics and the UNC Gene Therapy Center, Chapel Hill, North Carolina Apr. 2007-Jul. 2007
- Assistant Professor, School of Biological Sciences, Georgia Institute of Technology 2007-2013
- Associate Professor, School of Biological Sciences, Georgia Institute of Technology 2013-2018
- Full Professor, School of Biological Sciences, Georgia Institute of Technology 2018-present

**III. Honors, Awards, and Recognitions:**

2019 – Keynote speaker at the 4<sup>th</sup> International Conference on New Horizons in Basic and Applied Science, Hurghada, Egypt: “Relationship between RNA and DNA in genome stability” (July 2019).

2018 – Keynote speaker at the Annual congress on CRISPR-Cas9 Technology, Boston, MA: “Uncovering the capacity of RNA to modify DNA in cells” (2018).

2018 – Keynote speaker at the Nucleic Acids 2018 Conference, Toronto, Canada: “Mechanisms of RNA-guided DNA repair and modification” (2018).

2016 - Howard Hughes Medical Institute Faculty Scholars Award.

2015 - 2015 Sigma Xi Research Award of the Georgia Institute of Technology Chapter for Best Faculty Paper.

2014 - School of Biology 2015 Abell Fellow Grant Award from the Bennie H. and Nelson D. Abell Endowment Fund.

2014 - Certificate “Thanks for being a great teacher” Thank a teacher program of Georgia Institute of Technology, Atlanta, GA.

2013 - Certificate “Thanks for being a great teacher” Thank a teacher program of Georgia Institute of Technology, Atlanta, GA (received 2 independent certificates).

2011 - Georgia Tech Fund for Innovation in Research and Education, GT-FIRE Award.

2010 - Certificate “Thanks for being a great teacher” Thank a teacher program of Georgia Institute of Technology, Atlanta, GA.

2009 - Coalition Membership in the Cancer Genetics & Epigenetics Program of the Winship Cancer Institute at Grady Memorial Hospital, Atlanta, GA.

2008 - Paper of the Year Award at the National Institute of Environmental Health Sciences for ‘RNA-templated DNA repair’, Storici et al., Nature 2007.

2007- Distinguished Cancer Scholar Award, Georgia Cancer Coalition, Georgia Research Alliance.

2005 - Scholarship award from the organizers of the Keystone Symposia on Mechanisms of DNA Replication and Recombination, Keystone CO, 2005.

2004 - Fellowship award from the organizers of The Salk Institute DNA Replication and Genome Integrity Meeting 2004; La Jolla, CA.

2002 - Fellowship award from the organizers of the Yeast Genetics and Molecular Biology Meeting at the University of Wisconsin, Madison.

2001 and 2003 - Fellows Award for Research Excellence (FARE) from the National Institute of Health (NIH).

1994 - Award from the Italian Society of General Microbiology and Microbial Biotechnology (SIMGBM).

1993 - Final-year undergraduate studying award from A. Marzullo foundation for a thesis in molecular and cellular biology.

**IV. Research, Scholarship, and Creative Activities** (\*, Asterisk indicates activities that resulted from work done at Georgia Tech, and the **names** of Storici's group student/personnel co-authors are in boldface):

#### **A. Published Books, Book Chapters, and Edited Volumes**

##### **A1. Books**

##### **A2. Refereed Book Chapters**

1. Inga, A., Storici, F., and Resnick, M. A. (2002). Functional analysis of the human tumor suppressor p53 and mutants using yeast. Review for: *Yeast as a tool in cancer research*. Kluwer Academic Publisher.
2. Storici, F., and Resnick, M. A. (2003). Delitto perfetto targeted mutagenesis in yeast using oligonucleotides. Review for: *Genetic Engineering: Principles and Methods*, New York, Kluwer Press. Vol. 25, p.189-207.
3. Storici, F., and Resnick, M. A. (2006). The delitto perfetto approach to in vivo site-directed mutagenesis and chromosome rearrangements with synthetic oligonucleotides in yeast. *Methods Enzymol.* 409: 329-345.
4. **\*Stuckey, S., Mukherjee, K., and Storici, F.** (2011). *In vivo* site-specific mutagenesis and gene collage using the *delitto perfetto* system in yeast *Saccharomyces cerevisiae*. In: "Methods in Molecular Biology", Edited by: H. Tsubouchi. Humana Press Inc., New York, NY; 745:173-191.
5. **\*Shen, Y., and Storici, F.** (2011). Detection of RNA-templated double-strand break repair in yeast. In: "Methods in Molecular Biology", Edited by H. Tsubouchi. Humana Press, New York, NY; 745:193-204.
6. **\*Stuckey, S., and Storici, F.** (2013) Gene Knockouts, *in vivo* Site-Directed Mutagenesis and Other Modifications Using the *Delitto Perfetto* System in *Saccharomyces cerevisiae*.

In Jon Lorsch, editors: *Laboratory Methods in Enzymology: Cell, Lipid and Carbohydrate*, Vol 533, MIE, UK: Academic Press, 2013, pp. 103-132.

7. \***Katz, S.**, and Storici, F. (2014). Genetic modification stimulated by the induction of a site-specific break distant from the locus of correction in haploid and diploid yeast. *In: "Methods in Molecular Biology"*, Edited by F. Storici. Humana Press, New York, NY; 1114:308-324.
8. \***Koh, K. D.**, Chiu, H.-C., Riedo, E. and Storici, F. (2015). Measuring the elasticity of ribonucleotide(s)-containing DNA molecules using AFM. *In: "RNA Nanotechnology and Therapeutics: Methods and Protocols, Methods in Molecular Biology"*, P. Guo and F. Haque (eds.), Springer Science+Business Media New York, vol. 1297, pp. 43-57; DOI 10.1007/978-1-4939-2562-9\_3.
9. \***Ruff, P.** and Storici, F. Genome editing by aptamer-guided gene targeting (AGT). *In: "Genome Editing: The Next Step in Gene Therapy"* Edited by T. Cathomen, M. Hirsch, and M. Porteus. American Society of Gene and Cell Therapy and Springer publishing. Vol 895, pp 111-124 (2016).
10. \***Keskin, H.**, and Storici, F. An approach to detect and study DNA double-strand break repair by transcript RNA using a spliced-antisense RNA template. *In Spies & Malkova, editors: Laboratory Methods in Enzymology: Mechanisms of DNA Recombination and Genome Rearrangements.* Elsevier Inc. Vol 601, pp 59-70 (2018).
11. \***Balachander, S.<sup>†</sup>**, **Yang, T.<sup>†</sup>**, **Newnam, G.**, **El-Sayed, M. M.**, Koh, K. D, and Storici, F. <sup>†</sup>Equal contribution. Capture of ribonucleotides in yeast genomic DNA using ribose-seq. *In Methods in Molecular Biology 'Yeast Systems Biology. Methods and Protocols'* (2nd ed), Springer, edited by Steve G. Oliver and Juan Castrillo. In press

### **A3. Edited Volumes**

1. \*Storici, F., Editor. (2011). *DNA Repair – On the pathways to fixing DNA damage and errors.* InTech. Open Access Publisher, Rijeka Croatia and Vienna Austria, EU.
2. \*Storici, F., Editor. (2014) *Gene Correction: Methods and Protocols – Methods in Molecular Biology*; Humana Press, New York, NY; Vol. 1114.

### **B1. Published and Accepted Journal Articles**

#### **Refereed Publications:**

1. Storici, F., Oberto, J., and Bruschi, C. V. The CDC6 gene is required for centromeric, episomal, and 2- $\mu$ m plasmid stability in the yeast *Saccharomyces cerevisiae*. *Plasmid*, 34: 184-197 (1995).
2. Storici, F., and Bruschi, C. V. Molecular engineering with the FRT sequences of the yeast 2  $\mu$ m plasmid: [cir<sup>o</sup>] segregant enrichment by counterselection for 2  $\mu$ m site-specific recombination. *Gene*, 195: 245-255 (1997).
3. Storici, F., Coglievina, M., and Bruschi, C. V. A 2-micron DNA-based marker recycling system for multiple gene disruption in the yeast *Saccharomyces cerevisiae*. *Yeast*, 15: 271-283 (1999).
4. Ljubijankic, G., Storici, F., Glisin, V., Bruschi, C.V. Synthesis and secretion of Providencia rettgeri and Escherichia coli heterodimeric penicillin amidases in *Saccharomyces cerevisiae*. *Gene*, 228: 225-232 (1999).
5. Storici, F., and Bruschi, C. V. Involvement of the Inverted Repeat of the yeast 2-micron DNA plasmid in site specific and RAD52-dependent homologous recombination. *Mol. Gen. Genet.*, 263: 81-9 (2000).
6. Storici, F., Lewis L. K., and Resnick M. A. In vivo site-directed mutagenesis using oligonucleotides. *Nat. Biotech.*, 19: 773-776 (2001).
7. Storici, F., Henneke, G., Ferrari, E., Gordenin, D.A., Hübscher, U., and Resnick, M. A. The flexible loop of human FEN1 endonuclease is required for flap cleavage during DNA replication and repair. *EMBO J.*, 21: 5930-5942 (2002).
8. Inga, A., Storici, F., Darden, T. A., and Resnick, M. A. Differential transactivation by the p53 transcription factor is highly dependent on p53 level and promoter target sequence. *Mol. Cell. Biol.*, 22: 8612-8625 (2002).
9. Storici, F., Durham, C. Gordenin, D. A., and Resnick, M. A. Chromosomal site-specific double-strand breaks are efficiently repaired by oligonucleotides. *Proc. Natl. acad. Sci. USA*, 100: 14994-14999 (2003).
10. Lewis, L. K., Storici, F., Van Komen, S., Calero, S., Sung, P., and Resnick, M. A. Role of the nuclease activity of *Saccharomyces cerevisiae* Mre11 in repair of DNA double-strand breaks in mitotic cells. *Genetics*, 166: 1701-1713 (2004).
11. Tomso, D. J., Inga, A., Menendez, D., Pittman G. S., Campbell, M. R., Storici, F., Bell, D. A., and Resnick, M. A., Functionally distinct polymorphic sequences in the human genome that are targets for p53 transactivation. *Proc. Natl. Acad. Sci. USA*, 102: 6431-6436 (2005).
12. Storici, F., Snipe, R. J., Chan, G. K., Gordenin, D. A., and Resnick, M. A. Conservative repair of a chromosomal double-strand break by single-strand DNA through two steps of annealing. *Mol. Cell. Biol.*, 26: 7645-7657 (2006).
13. Storici, F., Bebenek, K., Kunkel, T.A., Gordenin, D.A. and Resnick, M.A. RNA-templated DNA repair. *Nature*, 447: 338-341 (2007).
14. \*Storici, F. RNA-mediated DNA modifications and RNA-templated DNA repair. *Curr. Opin. Mol. Ther.* 10: 224-230 (2008).
15. \*Yang, Y., Sterling, J., Storici, F., Resnick, M.A., and Gordenin, D.A. Hypermutability of damaged single-strand DNA formed at double-strand breaks and uncapped telomeres. *PLoS Genetics*, 4, e1000264 (2008).
16. \*Hirsch, M., Storici, F., Li, C., Choi, V.W., and Samulski, R.J. AAV recombineering using single-strand oligonucleotides. *PLoS One*, 4, e7705 (2009).

17. \***Shen, Y.**, and Storici, F. Generation of RNA/DNA hybrids in genomic DNA by transformation using RNA-containing oligonucleotides. *J. Vis. Exp.* 45. <http://www.jove.com/index/details.stp?id=2152>, doi: 10.3791/2152 (2010).
18. \***Shen, Y., Nandi, P., Taylor, M. B., Stuckey, S., Bhadsavle, H. P.**, Weiss, B., and Storici, F. RNA-driven genetic changes in bacteria and in human cells. *Mutat. Res.*, 717, 91-98 (2011).
19. \***Shen, Y., Koh, K. D.**, Weiss, B. and Storici, F. Mispaired rNMPs in DNA are mutagenic and are targets of mismatch repair and RNases H. *Nat. Struct. & Mol. Biol.* 19: 98-104 (2011).
20. \***Ruff, P., Pai, R.** and Storici, F. A DNA aptamer for bovine serum albumin. *ISRN Mol. Biol.* Article ID 939083, 9 pages doi:10.5402/2012/939083 (2012).
21. \***Mukherjee, K.** and Storici, F. A mechanism of gene amplification driven by small DNA fragments. *PLoS Genetics*, 8 (12), e1003119 (2012).
22. \***Ruff, P., Koh, K. D., Keskin, H, Pai, R.** and Storici, F. Aptamer-guided gene targeting in yeast and human cells. *Nucleic Acids Res.* 42, No. 7 e61 doi: 10.1093/nar/gku101 (2014).
23. \***Katz, S. S.**, Gimble, F. S. and Storici, F. To nick or not to nick: comparison of I-SceI single- and double-strand break-induced recombination in yeast and human cells. *PLoS One.* 9 (2), e88840 (2014).
24. \***Chiu, H.-C.\***, **Koh, K. D.\***, Evich, M., Lesiak, A., Germann, M., Bongiorno, A., Riedo, E. and Storici, F. RNA intrusions change DNA elastic properties and structure. \*Equal contribution. *Nanoscale.* DOI: 10.1039/c4nr01794c (2014).
25. \***Keskin, H., Shen, Y.**, Huang, F., Patel, M., **Yang, T, Ashley, K,** Mazin, A. V. and Storici, F. Transcript RNA-templated DNA recombination and repair. *Nature.* 515: 436-439, doi:10.1038/nature13682 (2014).
26. \***Koh, K. D., Balachander, S.**, Hesselberth, J. R. and Storici, F. Ribose-seq: global mapping of ribonucleotides embedded in genomic DNA. *Nat. Methods*, 12: 251-257, doi:10.1038/nmeth.3259 (2015).
27. \***Koh, K.D.**, Hesselberth, J. & Storici, F. Ribose-seq: ribonucleotides in DNA to Illumina library. *Protoc. Exchange* doi:10.1038/protex.2015.044 (19 May 2015).
28. \***Keskin, H.** and Storici, F. Defects in RNase H2 stimulate DNA break repair by RNA reverse transcribed into cDNA. *MicroRNA*, 4(2):109-116 (2015).
29. \***Keskin, H., Meers, C.** and Storici, F. Transcript RNA supports precise repair of its own DNA gene. *RNA Biol.* 13: 157–165 (2016).
30. \***Meers, C., Keskin, H.**, and Storici, F. DNA repair by RNA: templated, or not templated, that is the question. *DNA Repair*, 44:17-21 (2016); on line: DOI: 10.1016/j.dnarep.2016.05.002
31. \***Evich, M., Spring, A. M., Storici, F., and Germann, M. W.** Structural impact of single ribonucleotides in DNA. *Chem Bio Chem*, 17(20):1968-1977 (2016).

32. \*Mazina, O. M. ‡, **Keskin, H.**‡, Hanamshet, K., Storici, F.\*, and Mazin, V.\*. RNA-dependent DNA repair driven by Rad52 inverse strand exchange. ‡, equal contribution; \* corresponding authors. *Mol Cell*, 67, 19–29 (2017); DOI: 10.1016/j.molcel.2017.05.019
33. \*Malfatti, M. C. \*, **Balachander, S.**\*, Antoniali, G., Koh, K. D., Saint-Pierre, C., Gasparutto, D., Chon, H., Crouch, R. J., Storici, F.†, and Tell, G. †. Abasic and oxidized ribonucleotides embedded in DNA are processed by human APE1 and not by RNase H2. \*Equal contribution; †corresponding authors. *Nucleic Acids Res*, 45, 11193-11212 (2017). doi: 10.1093/nar/gkx723.
34. \*Michelini, F., Jalihal, A., Francia, S., **Meers, C.**, Neeb, Z. T., Rossiello, F., Gioia, U., Aguado, J., Jones-Weinert, C., Luke, B., Biamonti, G., Nowacki, M., Storici, F., Carninci, P., Walter, N. G. and d’Adda di Fagagna, F. From “cellular” RNA to “smart” RNA: multiple roles of RNA in genome stability and beyond. *Chem Rev*. 2018;118(8):4365-4403. doi: 10.1021/acs.chemrev.7b00487.
35. \***Gombolay, A. L.**, Vannberg, F. O, and Storici, F. Ribose-Map: A bioinformatics toolkit to map ribonucleotides embedded in genomic DNA. *Nucleic Acids Res*, October 1 2018, doi: 10.1093/nar/gky874. 2019.
36. \*Malfatti, M. C., Henneke. G., **Balachander. S.**, Koh, K. D., **Newnam, G.**, Uehara, R., Crouch, R. J., Storici, F., Tell, G. Unlike the E. coli counterpart, archaeal RNase HII cannot process ribose monophosphate abasic sites and oxidized ribonucleotides embedded in DNA. *J Biol Chem*, 2019, July 19, doi: 10.1074/jbc.RA119.009493.
37. \***Koh, K. D.**, **Balachander, S.**, Hesselberth, J. R. and Storici, F. Addendum: Ribose-seq: global mapping of ribonucleotides embedded in genomic DNA. *Nat. Methods*, 16: 787-788, doi: 10.1038/s41592-019-0505-9 (2019).
38. \*Mukherjee, K., English, N., **Meers, C.**, Kim, H., Jonke, A., Storici, F., and Torres, M. Systematic Analysis of Linker Histone PTMs Reveals Phosphorylation Sites that Modulate Homologous Recombination and DSB Repair. *DNA Repair* (2019), accepted.

## **B2. Conference Presentation with Proceedings (Refereed)**

## **B3. Other refereed material**

## **B4. Submitted Journal Articles**

## **C. Other Publications and Creative Products**

1. \*Storici, F. (2013). RNA-mediated DNA repair. *International Innovation*, Nov. p 86-87. (Non-Refereed)
2. \*Storici F, Tichon AE. RNA takes over control of DNA break repair. *Nat Cell Biol*. 2017 Nov 29;19(12):1382-1384. doi: 10.1038/ncb3645. (News and Views)

## **D. Presentations**

## Meetings and Symposia:

### Invited Speaker

- FASEB Summer Research Conference “Dynamic DNA Structures in Biology”, Oak Island Resort and Conference Center, Nova Scotia “Mechanisms of RNA-templated DNA repair and modification” (to occur in June 2020). (**Invited speaker**)
- Workshop, Discrete and Topological Models in Molecular Biology at University of South Florida in Tampa FL: “TBD (to occur in May 2020). (**Invited speaker**)
- 4<sup>th</sup> International Conference on Molecular Biology & Nucleic Acids, Chicago, IL “Distinct mechanisms of RNA-templated DNA repair and modification” (October 2019). (**Invited speaker**)
- Keynote speaker at the 4<sup>th</sup> International Conference on New Horizons in Basic and Applied Science, Hurghada, Egypt: “Relationship between RNA and DNA in genome stability” (July 2019). (**Invited keynote speaker**)
- \*Future Biotech Winter Retreat 2019 “Genome Function, Editing and Therapy”, Saint Petersburg, Russia: Uncovering the relation between RNA and DNA in genome stability (Jan 2019). (**Invited speaker**)
- \*1st Southern Genome Maintenance Conference, Mobile, AL: “Role of Rad52 in RNA-guided DNA repair and modification” (Oct. 2018). (**Invited speaker**)
- \*Annual congress on CRISPR-Cas9 Technology, Boston, MA: “Uncovering the capacity of RNA to modify DNA in cells” (Oct. 2018). (**Invited, keynote speaker**)
- \*EMBO Workshop on ‘Keeping the peace between RNA and DNA: Cooperation and conflict management in genome maintenance’ Institute of Molecular Biology (IMB) in Mainz, Germany: “RNA-mediated DNA repair and recombination with and without an induced break” (Oct. 2018). (**Invited**)
- \*HHMI Science meeting, Janelia Research Campus in Ashburn, VA: “Uncovering the capacity of RNA to modify DNA in cells” (Sept. 2018). (**Invited**)
- \*Nucleic Acids 2018 Conference, Toronto, Canada: “Mechanisms of RNA-guided DNA repair and modification” (August 2018). (**Invited, keynote speaker**)
- \*The Indo-US Conference 6th EU-US Conference on Transcription, Chromatin Structure, DNA Repair and Genomic Instability, Bangalore, India: “DNA repair and modification guided by RNA” (March 2018). (**Invited**)



- \*The 6th EU-US Conference on Repair of Endogenous DNA Damage, Udine, Italy: “DNA repair by template RNA” (Sept. 2017). **(Invited)**
  
- \*The Fifth Annual Genome Engineering Workshop, Broad Institute in Cambridge, MA: “Mechanism and players of DNA double-strand break repair by RNA” (May 2017). **(Invited)**
  
- \*Keystone Symposia on Genomic Instability and DNA Repair 2017, Santa Fe, New Mexico: “Double-strand break repair by transcript RNA is stimulated by Rad52 and requires limited end resection” (April 2017).
  
- \*Revolutionizing Next-Generation Sequencing, a VIB Tools & Technologies Conference, Antwerp, Belgium (March 2017) declined (**Alli Gombolay**, PhD student did substitute). **(Invited)**
  
- \*RNase H 2016, Kyoto, Japan: “A recombination mechanism of DNA break repair by transcript RNA” (Sept. 2016).
  
- \*2016 Genome Engineering: The CRISPR/Cas9 Revolution meeting, Cold Spring Harbor, NY: “DNA double-strand break repair by RNA or DNA is more efficient in *cis* than in *trans*” (August 2016). **(Invited)**
  
- \*RNA Nanotechnology Fusion Conference, Berkshire, United Kingdom: “Efficient repair of a DNA double-strand break by homologous template RNA in *cis*” (August 2016). **(Invited)**
  
- \*FASEB Summer Research Conference on Dynamic DNA Structures in Biology, Saxtons River, Vermont: “Homology-driven DNA break repair by transcript RNA” (July 2016). **(Invited)**
  
- \*Abcam, Mechanisms of Recombination 2016 conference, Alicante, Spain: “DNA double-strand break repair by transcript RNA” (May 2016).
  
- \*Gordon Research Conference on DNA Damage, Mutation and Cancer, Ventura, CA: “DNA self-repair by transcript RNA” (March 2016). **(Invited)**
  
- \*101st Annual Meeting of the Southeastern Branch of the American Society of Microbiology, Kennesaw University, Kennesaw, GA: “Ribose-seq: an approach to capture and map ribonucleotides incorporated in genomic DNA” (Nov. 2015).
  
- \*Radiation Research Society meeting 2015, Florida: “DNA break repair by transcript RNA” (Sept. 2015). **(Invited)**

- \*RNAi China 2015, Kunshan City, China: “DNA self-repair by non-coding transcript RNA” (Sept. 2015). **(Invited)**
  
- \*ChinaNano2015, Beijing, China: “TBD” (Sept. 2015). Declined. **(Invited)**
  
- \*FASEB Summer Research Conference on Genetic Recombination and Genome Rearrangement, Steamboat Springs, CO: “A mechanism of RNA-DNA recombination” (July 2015). **(Invited)**
  
- \*Trends in RNA Biology, Minisymposium, Videoconference speaker: “The role of RNA in genome stability and modification” Binotech, Fatih University, Istanbul, Turkey (May 2015). **(Invited)**
  
- \*Keystone Symposia Genomic Instability and DNA Repair X3/X4 2015, Whistler, British Columbia, Canada: “Double-strand break repair with transcript RNA” (March 2015). **(Invited)**
  
- \*RNase H 2014, Warrenton, VA: “Defects in RNase H activity stimulate DNA break repair by cDNA and transcript RNA templates in yeast” (Sept. 2014).
  
- \*Suddath Symposium 2014 on DNA Repair and Human Disease, Atlanta, GA: “Relationship between RNA and DNA in Genome Stability” (Feb. 2014). **(Invited)**
  
- \*15th Annual Midwest Regional DNA Repair Symposium in Lexington, KY: “Transcript RNA-templated chromosomal double-strand break repair” (2013).
  
- \*2013 International Conference of RNA Nanotechnology and Therapeutics in Lexington, KY: “DNA repair, modification and engineering by transcript RNA” (2013). **(Invited)**
  
- \*RNase H 2012 Conference in Edinburgh, UK: “Chromosomal double-strand break repair with transcript RNA” (2012).
  
- \*Gordon Research Conference on Mutagenesis, Salve Regina University, RI: “RNA transcript-directed chromosomal double-strand break repair” (2012). **(Invited)**
  
- \*School of Biology Retreat 2012, Helen, GA: “Role of RNA in genome stability” (2012). **(Invited)**
  
- \*FASEB, Dynamic DNA structures in Biology, Saxtons River, VT: “RNA-mediated DNA modifications” (2012). **(Invited)**
  
- \*Georgia Cancer Coalition, Macon, GA: “Resolution of RNA/DNA mismatches results from interplay between mismatch repair and RNase H functions” (2011). **(Invited)**

- \*Keystone Symposia on DNA Replication and Recombination, Keystone, CO: “Resolution of RNA/DNA mispairs results from interplay between mismatch repair and RNase H functions” (2011).
- \*IBB Industry Partners Symposium, Georgia Institute of Technology, Atlanta, GA: “Establishing molecular tools for genetic manipulations from yeast to human cells” (2010). **(Invited)**
- \*Georgia Cancer Coalition, Athens, GA: “RNA-driven DNA modifications from bacteria to mammalian cells” (2009). **(Invited)**
- \*Retreat of the Laboratory of Molecular Genetics at NIEHS, Durham, NC: “RNA-driven DNA modifications from bacteria to mammalian cells” (2009). **(Invited)**
- \*South East Regional Yeast Meeting, Gatlinburg, TN: RNA-templated DNA repair” (2008).
- \*Keystone Symposia on Mechanisms of DNA Replication and Recombination, Santa Fe, NM: “RNA-templated DNA repair” (2008).
- \*Symposium on RNA Biology VII, University of North Carolina at Chapel Hill, NC: “RNA-templated DNA repair” (2007).
- \*Yeast Meeting Emory – Georgia Tech, Emory University, Atlanta, GA: “RNA-templated DNA break repair” (2007). **(Invited)**
- Gordon Research Conference on Mutagenesis, Newport, RI: “RNA can serve as a template for double-strand break repair and DNA synthesis within the chromosome” (2006). **(Invited)**
- American Society of Gene Therapy (ASGT) Meeting, Baltimore, MD; Late Braking Abstract presentation: “DNA repair and gene targeting to a chromosomal double-strand break with DNA and RNA oligonucleotides” (2006). **(Invited)**
- 2nd ICGBE Alumni Meeting, Trieste, Italy: “DNA repair and gene targeting with synthetic oligonucleotides” (2005). **(Invited)**
- South Eastern Regional Yeast Meeting (SERYM), Atlanta, GA: “Mechanism of double-strand break repair by single-strand oligonucleotides in yeast” (2005).
- Keystone Symposia on Mechanisms of DNA Replication and Recombination, Keystone CO: “Mechanism of double-strand break repair by single-strand oligonucleotides in yeast” (2005).

- DNA Repair Videoconference for the NIH DNA Repair Interest Group: “Addressing mechanisms of recombination and double strand break repair in yeast with targeted oligonucleotides and the delitto perfetto approach” (2004). (**Invited**)
- The Salk Institute DNA Replication and Genome Integrity Meeting; La Jolla, CA: “Targeting of oligonucleotides to a double-strand break occurs via a single-strand annealing pathway of recombinational repair” (2004).
- Sixth Annual Midwest DNA Repair Symposium; Lexington, Kentucky: “Targeting of oligonucleotides to a double-strand break occurs via a single-strand annealing pathway of recombination” (2004).
- Yeast Genetics and Molecular Biology Meeting, University of Wisconsin, Madison: “Delitto perfetto in vivo mutagenesis in *Saccharomyces cerevisiae*” (2002).
- XXth International Conference on Yeast Genetics and Molecular Biology, Prague: “In vivo site-directed mutagenesis using oligonucleotides: a versatile system for functional genomics” (2001).
- Yeast Genetics and Molecular Biology Meeting, University of Maryland, MD: “A marker rescue system for multiple gene disruption in the yeast *Saccharomyces cerevisiae*” (1998).
- Joint Congress of SIMGBM 1994, Pescara, Italy: “The role of the CDC6 gene on plasmid stability in the yeast *Saccharomyces cerevisiae*” (1994).

#### **Invited Seminars at Universities and Institutions:**

- \*National Cancer Institute (NCI), NIH, Bethesda: “TBD” (to occur in May 2020).
- \*Southeast Center for Mathematics and Biology (SCMB), Georgia Institute of Technology, Atlanta: “Modelling DNA-RNA interactions” (June 2019).
- \*University of Southern California, Los Angeles: “Mechanisms of RNA-mediated genomic stability and instability” (March 2019).
- \*Technical University of Denmark, Kongens Lyngby, Denmark: “Uncovering direct roles of RNA in genomic stability and instability” (Dec. 2018).
- \*The University of Hyderabad, Hyderabad, India: “RNA-mediated genomic stability and instability” (March 2018).
- \*Saint Louis University School of Medicine, St. Louis, MO: “Mechanisms of RNA-driven genetic stability and instability” (Feb. 2018).

- \*International Center for Genetic Engineering and Biotechnology, ICGEB, Trieste, Italy: “Discovering direct roles of RNA in genomic stability and instability” (Dec. 2017).
- \*Morrow High School, Morrow, GA “DNA & RNA: Molecular Biology, Damage, Repair & Biotech” (November 2017).
- \*Georgia Institute of Technology, Atlanta, GA: “Uncovering mechanisms of RNA-driven genomic stability and instability” (May 2017).
- \*University of Virginia, Charlottesville, VA: “Central dogma reversed in the process of DNA double-strand break repair by RNA” (May 2017).
- \*The NCI’s Center for Cancer Research (CCR) - RNA Biology Seminar Series, NCI-Frederick, MD: “Mechanisms and players of DNA double-strand break repair by RNA” (May 2017).
- \*Winship Cancer Institute of Emory University, Atlanta, GA: “Transcript RNA as template for DNA double-strand break repair via homologous recombination” (October 2016).
- \*University of North Carolina at Chapel Hill (UNC), Chapel Hill, NC: “Central dogma reversed to repair DNA by RNA” (April 2016).
- \*Southern Illinois University, School of Medicine, Carbondale, IL: “DNA repair and recombination with transcript RNA” (March 2016).
- \*Presentation to the College of Science Dean, Georgia Tech: “Central dogma reversed to repair DNA by RNA” (Feb. 2016).
- \*Instituto Gulbenkian de Ciência, Oeiras, Portugal: “A mechanism of DNA double-strand break repair by transcript RNA” (December 2015).
- \*Drexel University, Philadelphia, PA: “RNA transcript-templated repair of DNA double-strand breaks” (December 2015).
- \*Arabia Mountain High School, Lithonia, GA: “DNA Damage and Repair” (November 2015).
- \*Department of Genetics and Biochemistry at Clemson University in Clemson, SC: “Homology-driven DNA double-strand break repair by transcript RNA” (April 2015).
- \*Université Laval, Quebec City, Quebec, Canada: “Mechanism of DNA double-strand break repair by transcript RNA via homologous recombination” (February 2015).

- \*University of Milano, Italy: “A mechanism of DNA double-strand break repair mediated by transcript RNA” (December 2014).
- \*Purdue University, West Lafayette, IN: “Transcript RNA is recombinogenic and promotes genome integrity” (October 2014).
- \*University of Udine, Udine, Italy “A mechanism how RNA impacts genomic DNA stability” (2013).
- \*University of Nova Gorica, Nova Gorica, Slovenia “DNA damage and repair mediated by RNA” (2012).
- \*Georgia Institute of Technology, Blended Research @ the Library, Manipulating Cells, Innovative Research at Georgia Tech, Atlanta, GA “Engineering the genome with DNA and RNA” (2012).
- \*Georgia Institute of Technology, IBB Breakfast Club, Atlanta, GA “Mechanisms of RNA-driven DNA modification and repair” (2012).
- \*Institute of Molecular Cancer Research, University of Zurich, Zurich, Switzerland: “Mechanisms of information flow from RNA to DNA” (2011)
- \*Cancer Genetics and Epigenetics, Winship Cancer Institute of Emory University, Atlanta, GA: “Resolution of RNA/DNA mispairs results from interplay between mismatch repair and RNase H functions” (2010).
- \*International Aicardi-Goutieres Syndrome Association (IAGSA), ‘C. Mondino Institute of Neurology’ Foundation, Pavia, Italy: “Flow of genetic information from RNA to DNA, from bacteria to human cells” (2009).
- \*Integrative BioSystems Institute & The Wallace H. Coulter Department of Biomedical Engineering at Georgia Tech and Emory University, Atlanta, GA: “Flow of genetic information from RNA to DNA, from bacteria to human cells” (2009).
- \*Department of Biochemistry, Emory University, Atlanta, GA: “RNA-driven DNA modifications from bacteria to human cells” (2009).
- \*Eppley Institute for Research in Cancer, Nebraska Medical Center, Omaha, NE: “RNA-driven DNA modifications from bacteria to mammalian cells” (2009).

- \*Centre for Integrative Biology, CIBIO, University of Trento, Italy: “RNA-driven DNA modifications from bacteria to mammalian cells” (2008).
- \*Scuola Normale Superiore di Pisa, Area della Ricerca CNR di Pisa, Italy: “DNA break repair with DNA or RNA” (2007).
- \*National Institute for Cancer Research, IST, Genoa, Italy: DNA break repair with DNA or RNA” (2007).
- \*Cancer Genetics and Genomic Instability (CGGI) Program, Winship Cancer Center, Emory University. Atlanta, GA: “DNA break repair and gene targeting” (2007).
- Cystic Fibrosis Center University of North Carolina, Chapel Hill, NC: “Healing chromosomal breaks and mutations with DNA and RNA oligonucleotides” (2006).
- Istituto Tumori Toscano, Firenze, Italy: “DNA repair and gene targeting with synthetic oligonucleotides” (2005).

## **E. Grants and Contracts:**

### Active:

#### **E1. As Principal Investigator**

- \*Howard Hughes Medical Institute Faculty Scholars Award (Francesca Storici, PI); HHMI 55108574 (November 1, 2016-October 31, 2021); Storici’s Share: 100%
- \*Mechanisms of RNA-DNA recombination (Francesca Storici, PI); NSF, MCB-1615335; (August 15, 2016-July 31, 2020) Storici’s Share: 100%
- \*Ribose-seq profile and analysis of ribonucleotides in DNA of oxidatively-stressed and cancer cells (Francesca Storici, PI; Gianluca Tell, subcontract co-Investigator); NIH, NIEHS R01 ES026243 (August 1, 2016-April 30, 2021) Storici’s Share: ~73%
- \*RNA-mediated DNA break repair (Francesca Storici, PI; Alexander Mazin, subcontract co-Investigator); NIH, NIGMS R01 GM115927 (August 1, 2015-July 31, 2020) Storici’s Share: ~72%
- \*CONFERENCE: Southeastern Regional Yeast Meeting to be held April 12-14, 2019 (Francesca Storici, PI); National Science Foundation, NSF, MCB -1928746 (April 1, 2019-March 31, 2020)

## **E2. As Co-Principal Investigator**

- None

## **E3. As Senior Personnel or Contractor**

- \*Southeast Center for Mathematics and Biology (SCMB), (Francesca Storici, Senior Investigator); NSF, DMS-1764406 and Simons Foundation, 594594 (08/01/2018 - 07/31/2023) Storici's Share: ~7%

### Completed:

## **E1. As Principal Investigator**

- \*Physical detection and mechanical properties of ribonucleotides embedded in DNA (Francesca Storici, PI; Elisa Riedo, Co-PI); IBSI Systems Biology Pilot Grant Competition (IBSI-4) (August 1, 2010-July 31, 2011) Storici's Share: ~67%

- \*Development of a protein driven gene targeting technology (Francesca Storici, PI; David Shaffer, subcontract co-Investigator); NIH, NIBIB R21 EB9228 (April 1, 2009-March 31, 2012) Storici's Share: ~70%

- \*Development of aptamers for gene targeting (Francesca Storici, PI); GT-FIRE Award (March 14, 2011-June 30, 2012) Storici's Share: 100%

- \*Mechanisms of RNA/DNA Hybrid Stability and of Information Flow from RNA to DNA in Yeast Cells (Francesca Storici, PI); NSF (MCB-1021763) (September 1, 2010-August 31, 2014) Storici's Share: 100%

- \*Distinguished Cancer Scholar Award "Genome-wide profiling and comparative analysis of ribonucleotide incorporation in prokaryotic and eukaryotic DNA" (Francesca Storici, PI); Georgia Cancer Coalition/ Georgia Research Alliance (July 1, 2007-June 30, 2015) Storici's Share: 100%

- \*School of Biology 2015 Abell Fellow Grant Award from the Bennie H. and Nelson D. Abell Endowment Fund (Francesca Storici, PI) (January 1, 2015-December 31, 2015) Storici's Share: 100%

- \*Detecting and quantifying ribonucleotides formed by oxidation of deoxyribose in DNA (Francesca Storici, PI); Integrative Cancer Research Center (ICRC) of Georgia Tech (May 3, 2019-June 30, 2019) Storici's Share: 100%

## **E2. As Co-Principal Investigator**



- \*Petite Interdisciplinary Research Seed Grant (12456H2) “Ribonucleotide incorporation into microbial DNA in the wild: profile, seasonal dynamics and role in adaptation to environmental perturbations” (Francesca Storici and Kostas Konstantinidis, Co-PIs) (July 1, 2015-June 31, 2016). Storici’s Share: 50%

- \*RNA-templated DNA repair and editing in neuronal cells, 12456H2 (co-PIs: Francesca Storici and Philip Santangelo); Petit Institute Interdisciplinary Seed Grant, Georgia Tech (July 1, 2016-December 31 2018) Storici’s Share: 50%

### **E3. As Senior Personnel or Contractor**

None

### **E4. As Pending Proposals**

None

### **E5. Proposals Submitted but Not Funded** (last two years)

- \*Pediatric Technology Center 2017, Georgia Tech Research Corporation “Patterns and hotspots of ribonucleotide incorporation in genomic DNA of human blood cells.” (Francesca Storici and Baek Kim, Co-PIs) (April 1, 2017-March 31, 2018). Storici’s Share: ~67%

## **F. Other Scholarly and Creative Accomplishments**

### **Patents:**

- Storici, F., Resnick, M.A., and Lewis, K. L. A versatile system for in vivo site-directed mutagenesis with oligonucleotides. Filed July 26, 2002 (PCT International Application PCT/US02/23634).

- \*Storici, F., **Ruff, P.** Aptamer-driven gene targeting. GTRC-6757, 2014. Provisional patent # US 9,944,933 B2 Apr. 17, 2018.

- \*Storici, F., Hesselberth, J.R., and **Koh, K. D.** Methods to detect Ribonucleotides in deoxyribonucleic acids. GTRC-6522, 2013; U.S. Patent Application No. 15/402,217, 2017.

- \***Gombolay, A.**, Vannberg, F., and Storici, F. Ribose-Map, GTRC ID# 7493 (Invention disclosure for new software for analysis of ribose-seq data) 01/11/2017.

## **G. Societal and Policy Impacts**

- Research provided/provides broad implications to many fields of biological sciences
- Research provided/provides direct opportunities for diverse young researchers in the STEM fields
- Mentoring of personnel at all levels in the lab
- Educational training of many students via teaching
- Integration of research and education
- Developed outreach initiative for supporting interest and participation in science of high-school students from underrepresented groups
- Visited high schools and made lectures and practice training to students and teachers
- Made many presentations of the research and divulged research via many publications
- Wrote book chapters and edited books to better divulgate scientific knowledge and methods
- Hosted general public for lab visits
- Worked as meeting/conference organizer of conferences

## H. Other Professional Activities

NA

## V. Teaching Experience:

### A. Courses Taught (last 6 years, since 2011)

Quarter, year	Course number	Course title	# of students
Spring, 2019	BIOL 4590B‡	Research Project Lab	9
Spring, 2018	BIOL 4803‡/8803‡	RNA Biology and Biotechnology	19
Spring, 2017	BIOL 4802‡/8802‡	RNA Biology and Biotechnology	20
Spring, 2016	BIOL 4803B‡/8803B‡	RNA Biology and Biotechnology	17
Fall, 2015	4590C‡	Research Project Lab	9
Spring, 2015	BIOL 4668/7668	Eukaryotic Molecular Genetics	12
Spring, 2015	BIOL 7964	Advances in Genetics	4
Fall, 2014	BIOL 4590C	Research Project Lab	6
Spring, 2014	BIOL 4668/7668	Eukaryotic Molecular Genetics	29
Spring, 2014	BIOL 7964	Advances in Genetics	9
Fall, 2013	BIOL 4590C	Research Project Lab	13
Spring, 2013	BIOL 4668/7668	Eukaryotic Molecular Genetics	24
Spring, 2013	BIOL 7964	Advances in Genetics	12
Fall, 2012	BIOL 4590C	Research Project Lab	11
Spring, 2012	BIOL 4668/7668	Eukaryotic Molecular Genetics	38
Spring, 2012	BIOL 7964	Advances in Genetics	7
Fall, 2011	BIOL 4590C	Research Project Lab	11
Spring, 2011	BIOL 4668‡/7668‡	Eukaryotic Molecular Genetics	18

‡These lectures have not been shared with other faculty. Others have been shared with another faculty member each semester (either Dr. Yury Chernoff or Kirill Lobachev, or both). Not listed above are undergraduate research, MS and doctoral thesis supervision, etc.

## **B. Individual Student/Personnel Guidance**

### **Graduate Students Supervised:**

#### **B1. PhD Students**

2007-2011                      Ying Shen (PhD, graduated)                      Georgia Tech, Biology  
Graduated in Fall 2011, Thesis “Studies on the Mechanisms of RNA-Driven DNA Repair and Modification” 2012-2014 Postdoctoral fellow at Boston University, 2014-2017 Bioinformatician Scientist at Stanford University; 2016-2018 Bioinformatician at biotech company Veracyte, San Francisco, CA; 2018-present Staff Data Scientist, Adara, San Francisco, CA.

2008-2013                      Samantha Stuckey (PhD, graduated) Georgia Tech, Biology  
Graduated in Spring 2013, Thesis “Gene targeting at and distant from DNA breaks in yeast and human cells” 2013 Postdoctoral position at the Center for Disease Control (CDC); present Associate Service Fellow, CDC.

2008-2013                      Patrick Ruff (PhD, graduated)                      Georgia Tech, Biology  
Graduated in Summer 2014, Thesis “Protein-assisted targeting of genes in yeast and human cells” 2014-2016 Postdoctoral fellow at Columbia University, NY; 2016-present Lead Scientist at Booz Allen Hamilton, NY.

2009-2015                      Kyung Duk Koh (PhD, graduated)                      Georgia Tech, Biology  
Graduated in Spring 2015, Thesis “Repair, consequences, and profile of ribonucleotides in DNA” 2015-present Postdoctoral fellow at University of California San Francisco (UCSF).

Fall 2011-May 2017      Havva Keskin                      Georgia Tech, Biology  
PhD Candidate; graduated in Spring 2017 thesis “Mechanisms of RNA-templated DNA double-strand break repair”; May 2017-present Postdoctoral fellow Storici lab at Georgia Tech; from Sept. 2017 Postdoctoral fellow Emory University in Department of Neuro-Oncology. Since 2018 she is Research Associate at Omega Bio-tek, in GA.

2012, 2013-2018              Sathya Balachander                      Georgia Tech, Biology  
Successfully defended, worked as postdoctoral fellow in the lab, joined in Aug 2019 University of Alabama at Birmingham as Licensing Associate.

2014-present                      Chance Meers                      Georgia Tech, Biology  
Preparing to defend his PhD thesis.

Spring 2015-2018              Matilde Clarissa Malfatti                      University of Udine (Italy)

Advisor Dr. G. Tell, Udine University; Co-advisor Storici (Matilde spent 6 months Feb-Aug. 2015 in Storici's lab). She graduated in 2018.

Fall 2015-present                      Alli Gombolay                      Georgia Tech, Bioinformatics  
Passed first Committee Meeting, preparing for QE.

Fall 2015-present                      Young Kyu Jeon                      Georgia Tech, Biology  
Was Master student 2015-2016; in Fall 2016 switched to PhD program in Biology; currently  
Passed first Committee Meeting, preparing for QE.

Fall 2016-present                      Taehwan Yang                      Georgia Tech, Biology  
Preparing for QE

Fall 2017-present                      Penghao Xu                      Georgia Tech, Bioinformatics  
In his second year, preparing for QE.

Fall 2018                      Zahra Ali                      Georgia Tech, Bioinformatics  
Completed first semester.

Fall 2019                      Deepali Kundnani                      Georgia Tech, Bioinformatics  
Started as Ph.D. Student in Bioinformatics.

## **B2. Master Students**

2012-2014                      Taehwan Yang (master, graduated)                      Georgia Tech, Biology  
Graduated in Spring 2014, Thesis "Understanding the relation between RNases H and retrotransposition activity in the context of the Aicardi-Goutières syndrome (AGS)" 2014-2016  
PhD student Dr. Shin, Georgia Tech; 2016-present PhD student Storici's group Bio. Sci. Georgia Tech.

2014-2015                      Gayathri Pratap Kurup (master, grad.)                      Georgia Tech, Bioinformatics  
Master Non-thesis, Graduated Spring 2015. Currently QA Analyst, Acadia Technologies.

Spring 2016-2017                      Yiqiuyi Liu                      Georgia Tech, Biology  
Rotation Master student

Fall 2019                      Xin Hang                      Georgia Tech, Bioinformatics  
Started as M.S. Student in Bioinformatics.

Fall 2019                      Paarth Parekh                      Georgia Tech, Bioinformatics  
Started as M.S. Student in Bioinformatics.

## **Other Graduate Students, who rotated/are rotating in Storici's lab**

2008 (fall)	Yu Zhang	Georgia Tech, Biology
2009-(fall)	Po-Yi Ho	Georgia Tech, Biology
2012-2013	Zhiqiang Lin	Georgia Tech, Biology
2010-2011	Sun Young Goo	Georgia Tech, Biology
2013-(fall)	Yuehui Zhao	Georgia Tech, Biology
2014	Nanda Aung	Georgia Tech, Biology
2016-2018	Waleed Mohammed El-Sayed	Visiting Scholar

Several of my PhD students have published as first authors in high impact journals such as *Nature* (Keskin *et al.*, *Nature* 2014), *Nat. Struct. Mol. Biol.* (Shen *et al.*, *NSMB* 2011), *Nature Methods* (Koh *et al.*, *Nat. Meth.* 2015) and *Molecular Cell* (Mazina & Keskin *et al.*, *Mol. Cell* 2017). Many graduate and undergraduate students received awards (Conference awards, GT awards, and International awards like the 2016 DeLill Nasser Award of the Genetics Society of America, won by Havva Keskin, who also won several other awards). Some undergraduates have names in publications, like Katie Ashley in Keskin, Shen, Huang, Patel, Yang, Ashley, Mazin, and Storici, *Nature* 2014; Pavan Nandi and Matthew Taylor share first authorship (\*) with the graduate student Ying Shen in the paper Shen\*, Nandi\*, Taylor\*, Bhadsavle, Stuckey, Weiss, and Storici, *Mutat. Res.* 2011; Hershel Bhadsavle is also an author in this paper. All graduate students directly trained by Storici's successfully progressed their career in the sciences (see above).

### B3. Undergraduate Students

#### Undergraduate Students Supervised:

Laura Weston	(University of North Carolina)	2000-2001
Mark King	(Duke University)	2001
Susannah Grant,	(Meredith College)	2002
Janet Liu	(North Carolina State University)	2001-2002
Christopher Durham	(University of North Carolina)	2002-2003
Ryan Milewski	(North Carolina State University)	2004
Godwin Chan	(University of North Carolina)	2005-2006 for Honor Thesis
Pavan Nandi	(Georgia Tech, Biology)	2008-2009
Lauren Rosenblatt	(Georgia Tech, Biology)	2008
Pooja Manjunatha	(Georgia Tech, Biology)	2008
Keerthi Kesavarap	(Georgia Tech, Biology)	2008
Yoshio Uemura	(Georgia Tech, Biology)	2008-2010
Hershel Bhadsavle	(Georgia Tech, Biology)	2009-2010
Crystal Ruper	(Georgia Tech, Biology)	2009-2010
Panaporn Aphivantrakul	(Georgia Tech, Biology)	2009-2010
Katie Ashley	(Georgia Tech, Biology)	2009-2011
Matthew Taylor	(Georgia Tech, Biology)	2009-2011
Whittney Mays	(Georgia State University)	2010
Taylor Holbrook	(Georgia Tech, Biology)	2010, 2011
Nancy Thakkar	(Georgia Tech, Biology)	2010
Megan Liu	(Georgia Tech, Biology)	2010

Nima Yazdanpanah	(Georgia Tech, Biology)	2011
Marika Shahid	(Georgia Tech, Biology)	2011
Anna Sulimirski	(Georgia Tech, Biology)	2011-2012
Courtney Price	(Georgia Tech, Biology)	2011-2012
Alli Gombolay	(Georgia Tech, Biology)	2011-2013
Parmi Shah	(Georgia Tech, Biology)	2011-2012
Lahari Shetty	(Georgia Tech, Biology)	2011-2013
Christine Lee	(Georgia Tech, Biology)	2012-2013
Mikhael Ravula	(Georgia Tech, Biology)	2012
Valerie Mock	(Georgia Tech, Biology)	2012-2013
Doyeon Kim	(Georgia Tech, Biology)	2012-2013
Katrina Lancaster	(Southern Polytechnic State University)	2013
Diana Tran	(Georgia Tech, Biology)	2013
Jake Raper	(Georgia Tech, Biology)	2013
Khadija Haq	(Georgia Tech, Biology)	2013
Emma Graf	(Georgia Tech, Biology)	2013-2014
Diana Sas	(Georgia Tech, Biology)	2013-2014
Chance Meers	(Georgia Tech, Biology)	2013-2014
Courtney Hegener	(Georgia Tech, Biology)	2014
Yael Toporek	(Georgia Tech, Biology)	2014
Soo Hyun Chun	(Georgia Tech, Biology)	2014
Amreen Fazal	(Georgia Tech, Biology)	2014
Sevde Nur Biltekin	(Istanbul University)	2014
Elif Sertel	(Istanbul University)	2014
Alexandra Skulskaya	(Georgia Tech, Biology)	2014-2015
Britney Lewis	(Georgia Tech, Biology)	2015
Lauren Traster	(Georgia Tech, Biology)	2015
Marina Ali	(Georgia Tech, BME)	2015, 2016
Swathi Rammohan	(Georgia Tech, Biology)	2015
Mary Ann Thaliath	(Georgia Tech, Biological Sciences)	2015-2016
Yonkyu Jang	(Georgia Tech, BME)	2015-2016
Katherine Gordon	(Georgia Tech, Biological Sciences)	2015-2016
Alexander Carusi	(Georgia Tech, Chem En)	2015
Caroline Sane	(Georgia Tech, Chem En)	2015
Haley Haufschild	(Georgia Tech, Biological Sciences)	2016
Simran Gidwani	(Georgia Tech, Biological Sciences)	2016
Kyle Taylor	(Georgia Tech, Biological Sciences)	2016
Stephanie Wyman	(Georgia Tech, Biological Sciences)	2016
Ashwinn John	(Georgia Tech, Biological Sciences)	2016
Tanika Bantukul	(Georgia Tech, Biological Sciences)	2016-2017
Reina Betancourt	(Georgia Tech, Biological Sciences)	2016-2017
Anjeli Patel	(Georgia Tech, Biological Sciences)	2016-2018
Paula Martinez-Feduchi	(Georgia Tech, Biological Sciences)	2017-2018
Veena Ganapathy	(Georgia Tech, BME post-graduate)	2017
Trupti Patel	(Georgia Tech, Biological Sciences)	2017
Efiyenia Ismini Kaparos	(Georgia Tech, Biological Sciences)	2017-2019

Hannah Lachmayr	(Georgia Tech, Biological Sciences)	2018-present
Preeya Parmar	(Georgia Tech, Biological Sciences)	2017-2018
Sandelin Sikes	(Georgia Tech, Biological Sciences)	2018
Roshan Patel	(Georgia Tech, Biological Sciences)	2018
Prachi Jain	(Georgia Tech, Biological Sciences)	2018-2019
Hannah Dailey	(Georgia Tech, Biological Sciences)	2018-2019
Tena Nguyen	(Georgia Tech, Biological Sciences)	2019
Uma Patel	(Georgia Tech, Biological Sciences)	2019
Zachary Mudge	(Georgia Tech, College of Computing)	2019-present
Neel Edupuganti	(Georgia Tech, Biological Sciences)	2019-present
Zeel Mehta	(Georgia Tech, Biological Sciences)	2019-present
Mary Garrett McLeod	(Georgia Tech, Biological Sciences)	2019-present

#### **B4. Service on Thesis or Dissertation Committees**

##### **Current graduate students on whose thesis committee I serve:**

Zachery J Deckner,	Ph.D. student (Georgia Tech, Biological Sciences, 2014-present)
Santi Mestre	Ph.D. student (Georgia Tech, Chemistry, 2017-present)
Lina Jay Garcia	Ph.D. student (Georgia Tech, Biology, 2017-present)
Wenyong Guo	Ph.D. student (Georgia Tech, Biology, 2018-present)

##### **Past Graduate Students on whose thesis committee I served:**

Hyun-min Kim	Ph.D. student (Georgia Tech, Biology, 2009-graduation 2009)
Sabelo Khuzwayo	Ms. student (Georgia Tech, Biology, 2010-graduation 2011)
Gaurav Arora	Ph.D. student (Georgia Tech, Biology, 2008-graduation 2011)
Todd Pan	Master student (Georgia Tech, Biology, 2010-graduation 2011)
He Gong	Ph.D. student (Georgia Tech, Biology, 2007-graduation 2011)
Meng Sun	Ph.D. student (Georgia Tech, Biology, graduation 2011)
Gaurav Arora	Ph.D. student (Georgia Tech, Biology, 2008-graduation 2011)
Elena Antonova	Ph.D. student (Georgia Tech, Biology, 2009-graduation 2013)
Yunzhe Zhang	Ph.D. student (Georgia Tech, Biology, 2009-graduation 2013)
Magdalena Medrzycki	Ph.D. student (Georgia Tech, Biology, 2008-graduation 2013)
Kaixiang Cao	Ph.D. student (Georgia Tech, Biology, 2008-graduation 2014)
Katy Bruce	Ph.D. student (Georgia Tech, Biology, 2009- graduation 2014)
Natalie Saini	Ph.D. student (Georgia Tech, Biology, 2009-graduation 2014)
Hiba Hamdan	Ms. student (Georgia Tech, Biology, 2013-graduation 2014)
Sun Young Goo	Ph.D. student (Georgia Tech, Biology, 2011-2014)
Watson Ryan Atlee	Ph.D. student (Georgia Tech, Chemistry, 2012- graduation 2018)
Eli Fine	Ph.D. student (Georgia Tech, BME, 2013-graduation 2015)
Chenyi Pan	Ph.D. student (Georgia Tech, Biology, 2009-graduation 2015)
Ziwei Sheng	Ph.D. student (Georgia Tech, Biological Sciences, 2011- graduation 2017)
Kathryn Lanier	Ph.D. student (Georgia Tech, Chemistry, 2013- graduation 2017)

Saira Dar	Ph.D. student (Georgia Tech, Chemistry, 2013-2014)
Zhiqiang Lin	Ph.D. student (Georgia Tech, Biological Sciences, 2013-2016)
Jin Xu	Ph.D. student (Georgia Tech, Biological Sciences, 2015-graduation 2017)
Burcu Guven	Ph.D. student (Georgia Tech, Biological Sciences, 2011)
Becca Howie	Ph.D. student (Georgia Tech, Biological Sciences, 2011- graduation 2018)
Pavithra Chandramowliswaran	Ph.D. student (Georgia Tech, Biological Sciences, 2011- graduation 2018)
Amy Ehrenworth	Ph.D. student (Georgia Tech, Chemistry, 2013- graduation 2018)
Matilde Clarissa Malfatti	Ph.D. student (University of Udine, Italy, 2015-graduation 2018)
Emil Jensen	Ph.D. student (Denmark Technical University, Copenhagen, Denmark, 2018 defense)
Jordan Gulli	Ph.D. student (Georgia Tech, Biological Sciences, 2015-graduation 2019)
Zhenyu Zhou	Ph.D. student (Georgia Tech, Chemistry, 2015)

## B5. Mentorship of Postdoctoral Fellows or Visiting Scholars

### Research Scientist Supervised:

Rekha Pai	(Georgia Tech, Biology)	2009-2013
Stefania Marsili	(Georgia Tech, Bio. Sci.)	(June 2017-present)

### Postdoctoral Fellows Supervised:

Kuntal Mukherjee	(Georgia Tech, Biology)	2008-2012
Havva Keskin	(Georgia Tech, Bio. Sci.)	(May 2017-September 2017)
Ailone Tichon	(Georgia Tech, Bio. Sci.)	(July 2017-June 2019)
Gabor Banyai	(Georgia Tech, Bio. Sci.)	(August 2017-September 2019)
Sathya Balachander	(Georgia Tech, Bio. Sci.)	(Feb 2019-July 2019)

### Lab Manager/Technician:

Gary Newnam	(Georgia Tech, Bio. Sci.)	2017-present
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### GT Affiliate:

Gurnaj Johal	(Georgia Tech, Bio. Sci.)	2018-2019
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## C. Other Teaching Activities

- I have worked to establish a new elective class: 'RNA Biology and Biotechnology' BIOL 4803B/8803B at the School of Biology of Georgia Tech. This class started Jan 2016 and was a very successful class. The class continued in 2017 as 4802/8802 and in 2018 as 4803/8803, and will continue in 2020 as 4803/8803.



- As previously done for Eukaryotic Molecular Genetics and the Advanced Genetics courses, I incorporated and incorporate the new findings generated with the research of my group into the laboratory classes as well as in the lectures of the 'RNA Biology and Biotechnology' as well as in the 'Research Project Lab' courses.

## **- High School Teacher and Students Supervised**

### **High School Teacher Supervised:**

Angenette Planter (Arabia Mountain, High School, GA, then Morrow High School, Morrow, GA) 2016-present

(with 4 high school students: Alexandria Eberhart, Dalean Thompson, Nia Morrison, and Artis Trice, 2017; Nivea J. Bodison, Charmayne Planter, Yazmeen Ross, Cierra Winfrey, Jaz'mine Ross, and Fernando Guadarrama, 2018; Angela Huynh, Charmayne Planter, Cierra Winfrey, and Fernando Guadarrama, 2019)

### **High School Students Supervised:**

Palani Eswaran	2008-2009
Benjamin Murray	2009
Melanie Parham	2010
Omer Oncul	2013, 2014, 2015
Hannah Kemelmakher	2014
Cydney Wang	2014
Roopsha Bandopadhyay	2015-2016
Nolan Hubbard	2015
Aamylah Nadeem Zakir	2019

## **VI. Service**

### **A. Professional Contributions**

#### **Membership in Professional and Honor Societies:**

2015 – present Sigma Xi Society

2009 – present Center for Nanobiology of the Macromolecular Assembly Diseases (NanoMAD)

2009 – present Winship Cancer Institute at Emory University

2008 – present RNA Society

2007 – present Georgia Cancer Coalition, Georgia Research Alliance

2006 – present Genetic Society of America

2003 – present American Association for the Advancement of Science

## **B. Public and Community Service**

### **Professional service**

- Co-Organizer of the Southeastern Regional Yeast Meeting (SERYM), 26th annual SERYM Meeting (April 2019).

- Study Section Molecular Genetics A (MGA) Temporary Member, National Institute of Health (NIH) R01, R21, R03, R15 applications (to occur in Feb 2019).

- Special Review Panel Member National Institute of Health (NIH) U01 applications (2018).

- Ad hoc reviewer for NSF, Genetic Mechanisms Cluster in the Division of Molecular and Cellular Biosciences. (2018).

- Guest Editor for *PNAS* (since 2018).

- Ad hoc reviewer for NIH Transformative Research Award (TRA) initiative. (Feb. 2018).

- Reviewer for the 2017-Petit Institute Interdisciplinary Research Seed Grant Program of Georgia Tech (May, June 2017).

- Guest Editor for *PLoS Genetics* (since 2017).

- Panel Member National Science Foundation, Genetic Mechanisms Review Panel (March 2017).

- Editorial Board of *Yeast* (since 2016).

- Reviewer for selecting 2017 Suddath Award winners of Georgia Tech (December 2016).

- With four graduate students visited the Sunshine STEM Academy of Alpharetta, GA to give a short presentation on ‘DNA repair by RNA’, and perform activities with 3<sup>rd</sup>, 4<sup>th</sup> and 5<sup>th</sup> grade students to build DNA and RNA molecules using a DNA and RNA kit (April 2016).

- Chair of Session ‘REPAIRING DNA BREAKS’ at the 2016 Genome Engineering: The CRISPR/Cas9 Revolution meeting, Cold Spring Harbor, NY (August 2016).

- Chair of platform session on ‘Physical and chemical approaches in RNA nanotechnology: Session I’ at RNA Nanotechnology Fusion Conference, Berkshire, United Kingdom: (August 2016).

- With three other colleagues of the School of Biology, hosted a visit of the general public by the Atlanta Science Tavern (January 2016).
- Reviewer for selecting 2016 Suddath Award winners of Georgia Tech (December 2015).
- Invited Guest at the American Medical Student Association (AMSA) Networking Night at Georgia Tech (2015).
- With three graduate students visited the Arabia Mountain High School, Lithonia, GA to give a seminar on “DNA Damage and Repair” and interact with about 50 11<sup>th</sup> and 12<sup>th</sup> grade students (November 2015).
- Invited Guest at the American Medical Student Association (AMSA) Networking Night at Georgia Tech (2014).
- Panel, National Institute of Environmental and Health Sciences (NIEHS, NIH) to review NIEHS received R13/U13 conference grant applications (2014).
- Co-Organizer of Conference and Chair of Platform Sessions: Suddath Symposium "DNA Repair and Human Disease", February 2014.
- Judge at the Georgia Tech Research & Innovation Conference (GTRIC) Poster Competition in 2013.
- Panel Member National Science Foundation (NSF): Mechanisms of inheritance (August, 2012).
- Chair of platform session FASEB, Dynamic DNA structures in Biology, Saxtons River, VT: “Hotspots for Genetic Instability” (June, 2012).
- Co-organizer of Conference: Southeastern Regional Yeast Meeting (SERYM), Emory University, Atlanta, GA (February 24-26, 2012).
- Chair of platform session Southeastern Regional Yeast Meeting (SERYM), Emory University, Atlanta, GA: “The RNA Lifecycle” (February 24-26, 2012).
- Editorial Board of Journal of Molecular Biochemistry (since 2012).
- Editorial Board of ISRN Molecular Biology (since 2011).
- Panel Member National Science Foundation (NSF): Mechanisms of inheritance (2011).
- Chair of Workshop: DNA Damage Response Mechanisms; Keystone Symposia on DNA Replication and Recombination, Keystone, CO: (2011).
- Grant Reviewer for proposals from the Georgia Cancer Coalition (GCC) (2009 and 2010), the National Science Foundation (NSF) Career Awards (2010; 2013), the Blanc SVSE 8 2012

program of the French National Research Agency (ANR) (2012), UMC Groningen, The Netherlands (2013), The National Science Centre of Poland (2014), the NIH NIEHS Review of R13/U13 Conference Grant Applications (2014), the National Science Center Poland (2015), KWF Kankerbestrijding (Dutch Cancer Society) (2017) and the Medical Research Council (MRC) at the University of Oxford (2017).

- Peer review: reviewer of book chapters (Modern Molecular Biology: Genomes to Proteomes) and manuscripts for multiple journals in the field of molecular biology and genetics, e.g.: *Science, Nature, Nature Reviews, Nature Communication, Nature Cell Biology, Nature Methods, Nature Structural and Molecular Biology, Scientific Reports, PNAS, PLoS Genetics, PLoS One, eLife, FEBS Journal, FEMS Journal, Journal of Molecular Biology, Molecular and Cellular Biology, Gene Therapy, Genome Research, EMBO Journal, Nucleic Acid Research, DNA Repair, ACS Synthetic Biology, Yeast, MicroRNA, Photochemistry and Photobiology, BMC Genomics, BMC Biotechnology, BMC Evolutionary Biology, Biophysical Journal.*

## **C. Institute Contributions**

### **Committees - Georgia Tech:**

2008 - 2014 Member, Georgia Tech Graduate Curriculum Committee  
2009 - 2015 Member, School of Biology Space Committee  
2009, 2014 Member, and Chair School of Biology Christmas Party Committee  
2010 - 2011 Member, School of Biology Design Committee for the new Biology building  
2011 - 2014 Member, School of Biology Graduate Committee  
2012 - 2018 Member, Georgia Tech Radiation Safety Committee  
2015 – 2016 Teaching Awards Committee  
2015 - 2017 Member, Endowed Chair Search Committee, Biological Sciences, Georgia Tech  
2015 – 2018 Member, Comm. for Academic Initiatives, Biological Sciences, Georgia Tech  
2016 - present Associate Chair for Graduate Program, Biological Sciences, Georgia Tech  
2016 - present Member College of Sciences Conflict of Interest Review Committee  
2016 - present Member Georgia Tech Institutional Research Awards Committee  
2016 - present Member School of Biological Sciences Student Learning Outcome Assessment  
2017 - present Member Faculty Steering Committee of Parker H. Petit Institute for Bioengineering and Bioscience Institute  
2019 - present Member Sigma Xi Young Faculty Award Committee