

**BIOGRAPHICAL SKETCH**

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NAME Nilgun E. Tumer		POSITION TITLE Professor	
eRA COMMONS USER NAME NTUMER			
EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)</i>			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
Agnes Scott College, Decatur, Georgia	B.A.	1974-1978	Chemistry with Honors
Purdue University, West Lafayette, Indiana	Ph.D.	1978-1982	Biochemistry
The University of Chicago	Postdoc	1982-1984	Molecular Genetics and Cell Biology

**A. Positions and Honors:**

- 1982-1984 Postdoctoral Fellow, Department of Molecular Genetics and Cell Biology, The University of Chicago, Chicago, IL
- 1984-1989 Senior Research Biologist/Research Specialist, Monsanto Co., St. Louis, MO
- 1989-1992 Group Leader, Monsanto Co., St. Louis, MO
- 1992-2001 Associate Professor, Biotech Center and Department of Plant Biology and Pathology, Rutgers University, New Brunswick, NJ
- 2001-present Professor, Biotech Center and Department of Plant Biology and Pathology, Rutgers University, New Brunswick, NJ

**Other Experience and Professional Memberships:**

- 2007 Panel member, NIH NIAID Cooperative Research Partnerships for Biodefense
- 2007 Acting Chair, NIH NIAID Special Emphasis Panel, Partnerships into Therapeutics and Diagnostics for Biodefense Toxins
- 2007-Pres. Vice-Chair, Gene Discovery and Engineering Resistance (GDER), US Wheat and Barley Scab Initiative
- 2002-Pres. Panel member, NSF Molecular and Cellular Biosciences
- 2002-Pres. Panel member, Busch Biomedical Research Grants, Rutgers University
- 2002-2005 Panel member, USDA SBIR
- 1997-1999 Panel member, NSF Molecular and Cellular Biosciences
- 1995-1996 Panel member, DOD Breast Cancer Program

**Honors:**

- June 2008 Member, Rutgers University Senate
- April 2006 Rutgers University Sustained Research Excellence Award
- April 2006 Rutgers University Patent Award
- Dec. 2004 Rutgers University Academic Excellence Fund Award
- April 2000 Rutgers University Research Excellence Award
- April 2000 Japanese Society for Promotion of Science Fellowship
- May 1995 Johnson & Johnson Discovery Award
- 1990 Monsanto Company Excellence in Research Award
- 1987 Special Achievement Award, Monsanto Company
- 1982-1984 American Cancer Society Postdoctoral Fellowship

**Selected peer-reviewed publications:**

1. C. Hemenway, J. Weiss, K. O'Connell and N. E. Tumer (1990). Characterization of infectious transcripts from a potato virus X clone. **Virology** 175, 365-371.
2. C. Lawson, W. Kaniewski, L. Haley, R. Rozman, C. Newell, P. Sanders and N. E. Tumer (1990). Engineering resistance to mixed virus infection in a commercial potato cultivar: Resistance to potato virus X and potato virus Y in transgenic Russet Burbank. **Bio/technology** 8, 127-134.
3. W. Kaniewski, C. Lawson, B. Sammons, L. Haley, J. Hart, X. Delannay and N. E. Tumer (1990). Field resistance of transgenic Russet Burbank potato to effects of infection by potato virus X and potato virus Y. **Bio/technology** 8, 750-754.
4. N. E. Tumer, W. Kaniewski, L. Haley, L. Gehrke, J. Lodge and P. Sanders (1991). The second amino acid of alfalfa mosaic virus coat protein is critical for coat protein-mediated protection. **Proc. Natl. Acad. Sci. USA** 88, 2331-2335.
5. J. K. Lodge, W. K. Kaniewski and N. E. Tumer (1993). Expression of pokeweed antiviral protein leads to broad spectrum virus resistance in transgenic plants. **Proc. Natl. Acad. Sci. USA** 90, 7089-7093.
6. C. L. Hartman, Lisa Lee, Peter Day and N. E. Tumer (1994). Herbicide resistant Turfgrass (*Agrostis palustris* Huds.) by biolistic transformation. **Bio/technology** 12, 919-923.
7. Y. Hur, D-J. Hwang, O. Zoubenko, C. Coetzer and N. E. Tumer (1995). Isolation and characterization of pokeweed antiviral protein mutations in *Saccharomyces cerevisiae*: Identification of residues important for toxicity. **Proc. Natl. Acad. Sci. USA** 92, 8448-8452.
8. D. E. Myers, X. Jun, K. G. Waddick, L. M. Chelstrom., R. L. Gunther, N. E. Tumer, J. Bolen and F. M. Uckun (1995). Membrane-associated CD19-LYN complex is an endogenous p53-independent and Bcl-2-independent regulator of apoptosis in human B-lineage lymphoma cells. **Proc. Natl. Acad. Sci. USA** 92, 9575-9579.
9. K. G. Waddick, R. Gunther, L. M. Chelstrom, M. Chandan-Langlie, D. E. Myers, J. D. Irvin, N. E. Tumer and F. M. Uckun (1995). In vitro and in vivo anti-leukemic activity of B43(anti-CD-19)-pokeweed antiviral protein immunotoxin against radiation resistant human pre-B acute lymphoblastic leukemia cells. **Blood** 86, 4228-4233.
10. F. M. Uckun, Y. Yanishevski, N. Tumer, B. Waurzyniak, Y. Messinger, L. M. Chelstrom, E. A. Scheider, O. Ek, T. Zeren, S. Haissig, M. Langlie, J. D. Irvin, D. E. Myers, W. Evans, R. Gunther (1997). Pharmacokinetic features, immunogenicity, and toxicity of B43(anti-CD19)-pokeweed antiviral protein immunotoxin in cynomolgus monkeys. **Clinical Cancer Research** 3, 325-337.
11. N. E. Tumer, D. J. Hwang and M. Bonness (1997). A C-terminal deletion mutant of pokeweed antiviral protein inhibits viral infection but does not depurinate host ribosomes. **Proc. Natl. Acad. Sci. USA** 94, 3866-3871.
12. S. Smirnov, V. Schulaev, and N. E. Tumer (1997). Expression of pokeweed antiviral protein in transgenic plants induces virus resistance in grafted wild type plants independent of salicylic acid accumulation and pathogenesis-related protein synthesis. **Plant Physiology** 114, 1113-1121.
13. B. Waurzyniak, E. Schneider, N. Tumer, Y. Yanishevski, R. Gunther, L. Chelstrom, H. Wendorf, D. Myers, J. Irvin, Y. Messinger, O. Ek, T. Zeren, M.-C. Langlie, W. Evans, and F. Uckun (1997). In vivo toxicity, pharmacokinetics, and antileukemic activity of TXU (Anti-CD7)-pokeweed antiviral protein immunotoxin. **Clinical Cancer Research** 3, 881-890.
14. O. Zoubenko, F. Uckun, Y. Hur, I. Chet and N. E. Tumer (1997). Pokeweed antiviral protein activates plant defense pathways independently of salicylic acid and leads to resistance to fungal infection. **Nature/Biotechnology** 15, 992-996.
15. D. J. Hwang, N. E. Tumer and T. M. A. Wilson (1998). Chaperone protein GrpE and the GroEL/GroES complex promote the correct folding of tobacco mosaic virus coat protein for ribonucleocapsid assembly in vivo. **Archives in Virology** 143, 2203-2214.
16. N. E. Tumer, B. Parikh, P. Li and J. Dinman (1998). Pokeweed antiviral protein specifically inhibits Ty1 directed +1 ribosomal frameshifting and TY1 retrotransposition in *Saccharomyces cerevisiae*. **Journal of Virology** 72, 1036-1042.
17. P. Wang, O. Zoubenko and N. E. Tumer (1998). Reduced toxicity and broad spectrum resistance to viral and fungal infection in transgenic plants expressing pokeweed antiviral protein II. **Plant Molecular Biology** 38, 957-964.

18. K. A. Hudak, J.D. Dinman and N.E. Tumer (1999). Pokeweed antiviral protein accesses ribosomes by binding to L3. **Journal of Biological Chemistry** 274, 3859-3864.
19. P. Wang and N. E. Tumer (1999). Pokeweed antiviral protein cleaves double-stranded supercoiled DNA using the same active-site required to depurinate rRNA. **Nucleic Acids Research** 27, 1900-1905.
20. N. Tumer, D. Rong, K. Hudak, P. Wang, C. Coetzer and O. Zoubenko (1999). Pokeweed antiviral protein against viral infection. "Plant Biotechnology: New Products and Applications" **Current Topics in Microbiology and Immunology** (J. Hammond, P. McGarvey, V. Yusibov, Eds) Springer-Verlag, pp. 139-158.
21. K. Hudak, P. Wang and N. E. Tumer (2000). Pokeweed antiviral protein inhibits translation of capped RNAs independently of ribosome depurination by acting directly on the RNA template. **RNA**, 6, 369-380.
22. P. Wang and N. E. Tumer (2000). Virus resistance mediated by ribosome inactivating proteins. **Advances in Virus Research**, 55, 325-356.
23. O. Zoubenko, K. Hudak and N. E. Tumer (2000). A nontoxic pokeweed antiviral protein mutant inhibits pathogen infection via a novel salicylic acid-independent pathway. **Plant Molecular Biology**, 44, 219-229.
24. K. Hudak, A. B. Hammell, J. Yasenchak, N. E. Tumer and J. D. Dinman (2001). C-terminal deletion mutant of pokeweed antiviral protein inhibits programmed +1 ribosomal frameshifting without depurinating the sarcin/ricin loop of rRNA. **Virology** 279, 292-301.
25. W. -Z. Hwang, C. Coetzer, N.E. Tumer and T. -C. Lee (2001). Expression of a bacterial ice nucleation gene in a yeast *Saccharomyces cerevisiae* and its application to food freezing processes. **Journal of Agricultural and Food Chemistry**, 49, 4662-4666.
26. C. Coetzer, D. Corsini, S. Love, J. Pavsek and N. E. Tumer (2001). Control of enzymatic browning in potato (*Solanum tuberosum* L.) by sense and antisense RNA from tomato polyphenol oxidase. **Journal of Agricultural and Food Chemistry**, 49, 652-657.
27. K. Hudak, J. Bauman and N. E. Tumer (2002). Pokeweed antiviral protein binds to the cap structure of eukaryotic mRNA and depurinates the mRNA downstream of the cap structure. **RNA**, 8, 1148-1159.
28. B. A. Parikh, C. Coetzer and N. E. Tumer (2002). Pokeweed antiviral protein regulates the stability of its own mRNA by a mechanism that requires depurination, but can be separated from depurination of the  $\square$ -sarcin/ricin loop of rRNA. **Journal of Biological Chemistry**, 277:41428-41437.
29. J. M. Vivanco and N. E. Tumer (2003). Translation inhibition of capped and uncapped viral RNAs mediated by ribosome-inactivating proteins. **Phytopathology** 93:588-595.
30. R. Di, J. Kim, M. N. Martin, T. Leustek, J. Jhoo, C.-T. Ho and N. E. Tumer (2003). Enhancement of the primary flavor compound methional in potato by increasing the level of soluble methionine, **J. Agricultural and Food Chemistry**, 51, 5695-5702.
31. B. A. Parikh and N. E. Tumer (2004). Antiviral activity of ribosome inactivating proteins in medicine. **Mini-reviews in Medicinal Chemistry** 4:529-549.
32. S. Popescu and N. E. Tumer. (2004). Silencing of ribosomal protein L3 genes in *N. tabacum* reveals coordinate expression and significant alterations in plant growth, development and ribosome biogenesis. **The Plant Journal**, 39:29-44.
33. K. Hudak, B. A. Parikh, Rong Di, M. Santana, M. Baricevic, M. Seskar and N. E. Tumer (2004). Generation of pokeweed antiviral protein mutations in *Saccharomyces cerevisiae*: Evidence that ribosome depurination is not sufficient for cytotoxicity. **Nucleic Acids Research**, 32:4244-4256.
34. B. A. Parikh, U. Baykal, R. Di and N. E. Tumer (2005). Evidence for retro-translocation of pokeweed antiviral protein from the endoplasmic reticulum into the cytosol and separation of its activity on ribosomes from its activity on capped RNA. **Biochemistry**, 44, 2478-2490.
35. R. Di and N. E. Tumer (2005). Expression of a truncated form of ribosomal protein L3 confers resistance to pokeweed antiviral protein and the *Fusarium* mycotoxin deoxynivalenol. **Molecular Plant-Microbe Interactions**. 18, 762-770.
36. X.-P. Li, M. Baricevic, H. Saidasan and N. E. Tumer (2007). Ribosome depurination is not sufficient for ricin mediated cell death in *Saccharomyces cerevisiae*. **Infection and Immunity** 75, 417-428.
37. U. Baykal and N. E. Tumer (2007). The C-terminus of pokeweed antiviral protein has distinct roles in transport to the cytosol, ribosome depurination and cytotoxicity. **The Plant Journal**, 49, 995-1007.

38. B. A. Parikh, A. Tortora, X.-P. Li and N. E. Tumer (2008). Ricin inhibits activation of the unfolded protein response by preventing splicing of the HAC1 mRNA. **Journal of Biological Chemistry**, 283, 6145-53.
39. J-C. Chiou, X-P. Li, M. Remacha, J. P. G. Ballesta and N. E. Tumer (2008). The ribosomal stalk is required for ribosome binding, depurination of the rRNA and cytotoxicity of ricin A chain in *Saccharomyces cerevisiae*. **Molecular Microbiology**, 70:1441-1452.
40. A. E. Baldwin, M.A. Khan, N. E. Tumer, D. J. Goss and D. E. Friedland (2009). Characterization of pokeweed antiviral protein binding to mRNA cap analogs: competition with nucleotides and enhancement by translation initiation factor iso4G. **Biochimica et Biophysica Acta** 1789:109-116.
41. X. P. Li, J. C. Chiou, M. Remacha, J. P. G. Ballesta and N. E. Tumer (2009). A two-step binding model proposed for the electrostatic interactions of ricin A chain with ribosomes. **Biochemistry** 48:3853-3863.
42. R. Di and N. E. Tumer (2009). Real-time reverse transcription PCR detection of viable Shiga toxin producing *Escherichia coli* O157:H7 in food. **Journal of Food Protection**, in press.