OMB No. 3145-0279 (Expiration Date 10/31/2026)

NIH Biographical Sketch Common Form

Name: SU, TIN TIN

Persistent Identifier (PID) of the Senior/Key Person: https://orcid.org/0000-0003-0139-4390

Position Title: Professor and Chair

Organization and Location:MCD Biology, University of Colorado, Boulder, Colorado, United States

PROFESSIONAL PREPARATION

INSTITUTION AND LOCATION	DEGREE	Start Date	Completion Date	FIELD OF STUDY
University of California, San Francisco, California, United States	Postdoctoral Fellow	01/1992	08/1998	DNA replication in Drosophila
Carnegie Mellon University, Pittsburgh, Pennsylvania, United States	Doctor of Philosophy (PHD)	08/1984	12/1991	DNA topology and transcription in E. Coli
Mt Holyoke College, South Hadley, Massachusetts, United States	Bachelor of Arts (BA)	08/1981	05/1984	Biochemistry

Appointments and Positions

2026 - present	Professor and Chair, MCD Biology, University of Colorado, Boulder, Colorado, United States
2012 - 2012	Visiting Profesor (sabbatical), Institute for Biomedical Research, Barcelona, Not Applicable, N/A, Spain
2011 - 2025	Professor, MCD Biology, University of Colorado, Boulder, Colorado, United States
2005 - 2011	Associate Professor, MCD Biology, University of Colorado, Boulder, Colorado, United States
2005 - 2005	Visiting Professor (sabbatical), Dept. Radiation Oncology, University of Colorado Cancer Center, Aurora, Colorado, United States
1998 - 2005	Assistant Professor, University of Colorado, Boulder, Colorado, United States

Products

Products Closely Related to the Proposed Project

1. Su TT. SVC112: From Hummingbirds to Head and Neck Cancer. Adv Exp Med Biol. 2025;1482:259-274. PubMed PMID: 40745146.
2. Gomes N, Frederick B, Tentler J, Su TT. Sensitivity to an inhibitor of translation elongation in solid and hematologic cancers. Sci Rep. 2025 Jul 1;15(1):21328. PubMed Central PMCID: PMC12218484.
3. Gomes NP, Frederick B, Jacobsen JR, Chapnick D, Su TT. A High Throughput Screen with a Clonogenic Endpoint to Identify Radiation Modulators of Cancer. Radiat Res. 2023 Feb 1;199(2):132-147. PubMed Central PMCID: PMC10000021.
4. Keysar SB, Gomes N, Miller B, Jackson BC, Le PN, Morton JJ, Reisinger J, Chimed TS, Gomez KE, Nieto C, Frederick B, Pronk GJ, Somerset HL, Tan AC, Wang XJ, Raben D, Su TT, Jimeno A. Inhibiting Translation Elongation with SVC112 Suppresses Cancer Stem Cells and Inhibits Growth in Head and Neck Squamous Carcinoma. Cancer Res. 2020 Mar 1;80(5):1183-1198. PubMed Central PMCID: PMC7056512.
5. Su TT. What Drosophila Can Teach Us About Radiation Biology of Human Cancers. Adv Exp Med Biol. 2019;1167:225-236. PubMed PMID: 31520358.

Other Significant Products, Whether or Not Related to the Proposed Project

1. Colon Plaza S, Su TT. Ionizing radiation induces cells with past caspase activity that contribute to the adult organ in Drosophila and show reduced Loss of Heterozygosity. Cell Death Discov. 2024 Jan 5;10(1):6. PubMed Central PMCID: PMC10770159.
2. Ledru M, Clark CA, Brown J, Verghese S, Ferrara S, Goodspeed A, Su TT. Differential gene expression analysis identified determinants of cell fate plasticity during radiation-induced regeneration in Drosophila. PLoS Genet. 2022 Jan;18(1):e1009989. PubMed Central PMCID: PMC8769364.
3. Brown J, Bush I, Bozon J, Su TT. Cells with loss-of-heterozygosity after exposure to ionizing radiation in Drosophila are

culled by p53-dependent and p53-independent mechanisms. PLoS Genet. 2020 Oct;16(10):e1009056. PubMed Central PMCID: PMC7595702.

4. Verghese S, Su TT. Drosophila Wnt and STAT Define Apoptosis-Resistant Epithelial Cells for Tissue Regeneration after Irradiation. PLoS Biol. 2016 Sep;14(9):e1002536. PubMed Central PMCID: PMC5008734.
5. Verghese S, Su TT. Ionizing radiation induces stem cell-like properties in a caspase-dependent manner in Drosophila. PLoS Genet. 2018 Nov;14(11):e1007659. PubMed Central PMCID: PMC6248896.

Certification:

I certify that the information provided is current, accurate, and complete. This includes but is not limited to information related to domestic and foreign appointments and positions.

I also certify that, at the time of submission, I am not a party to a malign foreign talent recruitment program.

Misrepresentations and/or omissions may be subject to prosecution and liability pursuant to, but not limited to, 18 U.S.C. §§ 287, 1001, 1031 and 31 U.S.C. §§ 3729-3733 and 3802.

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NIH BIOGRAPHICAL SKETCH SUPPLEMENT

Name: SU, TIN TIN

Persistent Identifier (PID) of the Senior/Key Person: https://orcid.org/0000-0003-0139-4390

Position Title: Professor and Chair

Organization and Location: MCD Biology, University of Colorado, Boulder, Colorado, United States

Personal Statement

I have led an independent research program in radiation biology of *Drosophila* and human cancer models since 1998. Areas of research in my lab include DNA repair, apoptosis, signaling by apoptotic cells, and cell fate plasticity during regeneration after radiation damage. Basic research in my lab has been funded by federal and private grants from sources that include the NIH, the American Cancer Society, and the Department of Defense. Current funding for *Drosophila* projects in lab is through an R35 MIRA grant on which I am the sole PI.

Since 2005, I have been leveraging my basic research findings into discovery and development of new anti-cancer drugs. These efforts, funded by two R21 grants from the NIH and two grants from the Department of Defense cancer research programs, generated three issued patents and one start-up company, SuviCa, Inc., where I serve as the Chief Scientific Officer. SuviCa has successfully completed two Phase I and two Phase II NCI SBIR contracts. The proprietary small molecule SVC112, a product of these efforts, was accepted into the NCI Experimental Therapeutics (NExT) program in March 2023 for development toward the clinic.

Since 2018, I have served as a Co-Program Leader for the Molecular and Cellular Oncology Program of the University of Colorado Cancer Center. I bring to this position administrative and leadership experience from current and prior roles, including as department chair (current); elected President of the *Drosophila* Board (2021–2022) and Past-President (2022–2024); board member and elected treasurer of the Genetics Society of America 92023-2025); and chair of seven different NIH study sections (two standing, four special emphasis and one declined due to conflict).

Ongoing NIH-Funded Research Project

Cellular Plasticity and Regeneration after Radiation Damage in *Drosophila*
This project identifies positive and negative regulators of regenerative behavior following exposure to ionizing radiation (IR) and characterizes the mechanisms by which signals from dying cells and other external factors regulate stem cell–like behavior.
Funding: R35 GM130374
PI: Su
Project Period: 04/01/2019 – 03/31/2029

Cancer-Focused Collaborative Projects

1.Targeting Protein Translation Elongation to Treat Cancer Patients
The goal of this project is to complete IND-enabling studies on SVC112—a drug that emerged from our *Drosophila* research and for which I hold a patent—and to assess it in human cancer patients in a Phase I clinical trial.
Funding: $4.2M Anschutz Acceleration Initiative
Role: Multi-PI (Jimeno and Su)
Project Period: 2024–2028

2. Targeting Oncogenic Myb Fusions in Salivary Gland Cancer with the Elongation Inhibitor SVC112
This project investigates novel fusions in salivary gland cancer (SGC) and comprehensively identifies targets of SVC112 using ribosome profiling and proteomics.
Funding: NIH R01 DE030683
PI: Jimeno
Project Period: 03/08/2021 – 03/07/2026
Role: Other Significant Contributor (reagents, scientific guidance, and data analysis support)

Honors

2026	Elected Fellow, American Association for the Advancement of Science
2024	Editorial board member, NIH Director's Transformative Research Award review, National Institutes of Health

2023	Elected Treasurer and Officer (served 3 years from 2023-2025), Genetics Society of America
2021	Elected Senior Member, National Academy of Inventors
2021	Elected President, Drosophila Board
2018	Invited consultant, United Nations-Internal Atomic Energy Agency, Vienna, Austria
2016	Invited participant, 'Rethinking Cancer' workshop , The Company of Biologists (Publishers), Wiston House, Steyning, Britain
2015	Outstanding Undergraduate Research Mentor Award , University of Colorado
2008	Laura & Arthur Colwin Endowed Summer Faculty Research Fellowship, Woods Hole Marine Biology Lab
2002	Residence Life Academic Teaching Award (undergraduate student-nominated), University of Colorado
1984	Graduated magna cum laude in Biochemistry, Mt Holyoke College
2014 - 2026	invited to chair 7 different study sections: RG1 MGG-D (55) R for R35 MIRA grants, Cell Signaling and Regulatory Systems (CSRS), Molecular Genetics B (MGB), ZRG1 ETTN-U (82) SEP for DoD-USU-High Priority Research Grants, ZRG1 CB-K (55) R for R35 MIRA grants, ZCA1-TCRB-J-C1 for NCI SBIR contracts, and ZRG1 MBBC F 55 for R35 MIRA grants (declined due to travel conflict), National Institutes of Health

Contribution to Science

1. I started my lab over 2 decades ago to study DNA Damage Responses (DDR). While DDR was an active research topic, most of the field used single cell systems such as yeast and cultured mammalian cells. I set out to study DDR in the context of profound cellular reprograming that happens during *Drosophila* development. We found that cells and multicellular organisms have common as well as different DDR mechanisms. The most notable was our finding that Chk1 kinase (Grapes in *Drosophila*) is required for the survival of irradiated cells but not for the survival of irradiated larvae. The reason, we discovered, was that although Chk1 sells suffer more damage, surviving cells regenerate to allow larval survival [1]. We went on to discover a radiation-induced p53-independent apoptosis mechanism [2] and identified the role of E2F1 and E2F2 in this mechanism via transcriptional regulation of Hid, a *Drosophila* Smac/DIABLO homolog [3].
    1. Jaklevic B, Uyetake L, Lemstra W, Chang J, Leary W, Edwards A, Vidwans SJ, Sibon O, **Su TT**. (2006) Contribution of Growth and Cell Cycle Checkpoints to Radiation Survival in Drosophila. Genetics. 174(4):1963-72. PMC1698627.
    2. Wichmann, A., Jaklevic, B. and **Su TT**. (2006) Ionizing Radiation induces caspase-dependent but Chk2 and p53-independent cell death in Drosophila melanogaster. PNAS, 103; 9952-57. PMC1502560.
    3. Wichmann, A.,L. Uyetake and **Su TT**. (2010) E2F1 and E2F2 have opposite effects on radiation-induced p53-independent apoptosis in Drosophila, Dev Biol. 346(1):80-9. PMC1502560.

2. The finding that Chk1 is dispensable for larval survival so long as surviving cells could regenerate led us to shift our focus from DDR to recovery and regeneration. Notable findings since include the identification of radiation-resistant epithelial cells that acquire regenerative properties after radiation damage [1,3], mechanisms by which cells with broken chromosomes are culled [2], and non-apoptotic roles for apoptotic caspases [4].
    1. Verghese, S. and **Su TT**. (2018) Ionizing radiation induces stem cell-like properties in a caspase-dependent manner in *Drosophila*. PLoS Genetics, 14(11):e1007659. Accompanying prospective, "The many fates of tissue regeneration" by RJ Duronio & C Abdullah.
    2. Brown J, Bozon J, Bush I, and **Su TT**. (2020) Cells that acquire loss-of-heterozygosity after exposure to ionizing radiation in *Drosophila* are culled by p53-dependent and p53-independent mechanisms. PLoS Genetics, 16(10):e1009056.
    3. Ledru M, Clark C, Brown J, Verghese S, Ferrara S, Goodspeed A and **Su TT**. (2022) Differential gene expression analysis identified determinants of cell fate plasticity during radiation-induced regeneration in *Drosophila*. PLoS Genet. 18(1):e1009989.
    4. Colon Plaza S. and **Su TT**. (2024) Ionizing radiation induces cells with past caspase activity that contribute to the adult organ in *Drosophila* and show reduced Loss of Heterozygosity. Cell Death Discov. Jan 5;10(1):6.

3. One driving question in my research program is ‘how applicable are lessons from Drosophila to human?’. To answer this question, we take the most interesting findings in *Drosophila* and assess their conservation in human models in vitro and in vivo.
    1. M. Gladstone, B. Frederick, D. Zheng, A. Edwards, P. Yoon, S. Stickel, T. DeLaney, D. C. Chan, D. Raben, **Su TT**. (2012) A translation inhibitor identified in a *Drosophila* screen enhances the effect of ionizing radiation and Taxol in mammalian models of cancer. Disease Models and Mechanisms. 5:342-50.
    2. Stickel SA, Gomes NP, Frederick B, Raben D, **Su TT**. (2015) Bouvardin Is a Radiation Modulator with a Novel Mechanism of Action. Radiation Research, 184:392-403.
    3. Keysar SB, Gomes N, Miller B, Jackson BC, Le PN, Morton JJ, Reisinger J, Chimed TS, Gomez KE, Nieto C,

Frederick B, Pronk GJ, Somerset HL, Tan AC, Wang XJ, Raben D, **Su TT***, Jimeno A*. (*co-corresponding authors). (2020) Inhibiting translation elongation with SVC112 suppresses cancer stem cells and inhibits growth in head and neck squamous carcinoma. Cancer Res. 80(5):1183-1198.

4. **Su TT**. (2019) What *Drosophila* Can Teach Us About Radiation Biology of Human Cancers (review). Adv Exp Med Biol. 1167:225-236.

4. To translate our basic research findings into potential therapies, we screened for small molecule modulators of tissue regeneration after radiation damage. Such molecules have the potential to improve the efficacy of radiation therapy of cancer. These efforts led to a proprietary screen for chemical inhibitors of tissue regeneration after radiation damage using *Drosophila* mutants, and 3 issued and 2 pending patents. Hits from this screen are being developed for cancer, with funding from SBIR contracts from the NCI to a start-up company I co-founded (www.suvica.com). Proprietary small molecule SVC112, a product of these efforts, was accepted into the NCI Experimental Therapeutics (NExT) program in March 2023 for development towards the clinic.
    1. Gomes NP, Frederick B, Tentler J, **Su TT**. (2025) Sensitivity to an inhibitor of translation elongation in solid and hematologic cancers. Scientific Reports. Jul 1;15(1):21328. PMC12218484.
    2. Gomes NP, Frederick B, Jacobsen JR, Chapnick D, **Su TT**. (2023) A high throughput screen with a clonogenic endpoint to identify radiation modulators of cancer. Radiation Research, 199(2):132-147. PMC10000021.
    3. US Issued Patents 9452215 (2016) and 10259846 (2019); EU Issued Patent 2817004 (2017). Bouvardin derivatives and therapeutic uses thereof. **Su TT**, lead inventor.
    4. Biomarkers for patient selection for treatment with a translation elongation inhibitor. Provisional Patent (filed 03/11/2025). Inventors: **Su TT** (lead inventor) and Jimeno A.

    Additional publications may be found at:
    https://www.ncbi.nlm.nih.gov/myncbi/browse/collection/44261907/?sort=date&direction=descending

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