BIOGRAPHICAL SKETCH

NAME: **SATCHI-FAINARO, RONIT**

eRA COMMONS USERNAME (agency login): RONITSATCHI

POSITION TITLE: Full Professor; Head, Gray School of Medical Sciences; Director, Cancer Biology Research Center, Tel Aviv University

EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE (if applicable)	Completion Date MM/YYYY	FIELD OF STUDY
The Hebrew University, Faculty of Medicine, School of Pharmacy.	B.Pharm.	06/1995	Pharmacology
Internship in Industrial Pharmacy in Perio Products LTD, Jerusalem, Israel.	Internship in Industrial Pharmacy	03/1996	Pharmaceutical sciences
University of London, Faculty of Medicine, School of Pharmacy, Center for Polymer Therapeutics, London, UK: Thesis title: "PDEPT: Polymer Directed Enzyme Prodrug Therapy". PI: Prof. Ruth Duncan, PhD.	Ph.D. (Direct path)	11/1999	Polymer chemistry, biochemistry, and cancer nanomedicine
Tel Aviv University, Faculty of Life Sciences**,** Department of Cell Research and Immunology, Tel Aviv, Israel. PI: Prof. Sara Lavi, PhD.	Postdoctoral Research Fellow	06/2001	Cancer biology, molecular biology, biochemistry, and protein delivery
Harvard Medical School and Children's Hospital, Boston, USA. PI: Prof. Judah Folkman, MD.	Postdoctoral Research Fellow	09/2003	Cancer and vascular biology, nanomedicine

A. PERSONAL STATEMENT

I am a Professor of Pharmacology in the Department of Physiology and Pharmacology and the Head of the Gray School of Medical Sciences, Tel Aviv University (TAU). During my 18 years at TAU, I gathered a multidisciplinary group of 30 outstanding scientists and a variety of collaborators in the pursuit of answering big questions, such as: What triggers dormant cancers to switch to a fast-growing phenotype after long periods of time? What is the reason that some cancer cells choose one organ as opposed to another as a metastatic niche? Is there a specific subpopulation of tumor cells within a tumor that exhibits high tumorigenic potential? And last but not least, based on the answers to these questions, can highly selective drugs be designed to eradicate this subpopulation of cells, thereby eliminating the tumors and fulfilling the "Magic Bullet" dream envisioned by Paul Ehrlich more than 100 years ago? To this end, we identified molecular signatures that predict tumor dormancy associated with incompetency to recruit the supporting stromal microenvironment and the factors determining long-term survivorship of cancer patients. Based on these signatures, my lab was the first to rationally design multi-modality targeted nano-vaccines and polymer therapeutics combining synergistically anti-stromal agents with chemotherapeutics and RNAi that offer the potential for improved efficacy and diminished toxicity in the treatment of cancer by targeting both the immune system and the tumor tissue directly. My research focuses on tumor biology, cancer dormancy, tumor-host interactions, angiogenesis, molecular and non-invasive intravital imaging of animal models of cancer, 3D-bioprinted cancer models, and personalized nanomedicines for cancer theranostics (***thera***py and diagn***ostics***) (http://SatchiFainaroLab.com). Throughout, I have maintained an interest in understanding the biological rationale behind the design of nanomedicines suitable for clinical testing. My multidisciplinary research laboratory focuses on basic research that elucidates the mechanisms underlying the switch from dormancy, leading to the discovery of new molecular targets that interrupt tumor-host interactions. My laboratory has a long-standing interest in polymer-based systems for the delivery of small molecules, oligonucleotides, and peptides for cancer treatment. Our approach is followed by the design of highly selective targeting molecules integrating biology, chemistry, engineering, molecular imaging, computational approaches, materials sciences, and nanotechnology to selectively guide drugs and biological entities to pathological sites. I am leading multi-investigator, multi-institutional, and multidisciplinary projects.

Member of Editorial Boards of Scientific Journals

Journal of Controlled Release (Associate Editor), Nanomedicine: Nano. Bio. Med., Advanced Polymer Science (Guest Editor), Advanced Drug Delivery Reviews, Clinical Cancer Drugs, Molecular Pharmaceutics (Guest Editor), Pharmaceutics, Israel Journal of Chemistry (Guest Editor), Advanced Therapeutics.

B. POSITIONS AND HONORS

Positions and Employment

2025-present ***Head,*** *Gray School of Medical Sciences, Gray Faculty of Medical & Health Sciences, TAU*
2025-present ***Member,*** American Institute of Medical and Biological Engineers (AIMBE) Int'l *Committee*
2025-present ***Full Professor of Biomedical Engineering****, Fleischman Faculty of Engineering, TAU*
2025-present ***Co-Founder and Chief Scientific Advisor, ImmuNovation Ltd.***
2025-present ***Founder and Chief Scientific Advisor, 4DCanPredict.***
2025-present **Member, Scientific Advisory Board, MultiMedica,** Clinical and Research Institute, Milan.
2024-present ***Member,*** Committee for Outstanding Physician-Scientists, Council for Higher Education
2023-present ***Co-Founder, Selectin Therapeutics Inc.***
2023-present **Member, Scientific Advisory Board, CAS,** a division of the American Chemical Society-ACS
2022-present ***Member, Medonna,*** *BioMedTech Women Leadership for Health.*
2021-present ***Member,*** Rambam Health Care Campus' Research Committee, Haifa, Israel
2021-2025 ***Member,*** Committee for Outstanding Resident Physician-Scientists, Israel Medical Association
2021-2023 ***Vice President,*** Federation of the Israel Societies of Experimental Biology **FISEB** Conference
2021-2025 ***Member, The Fulbright Fellowships Committee***
2021-present ***Member, Scientific Advisory Board,*** Immunyx
2021-present ***Visiting Full Professor,*** *University of Lisbon*
2021-present ***Member, Scientific Advisory Board,*** iMed Research Institute for Medicines, U. Lisbon.
2020-present ***Director, Cancer Biology Research Center (CBRC),*** *TAU and 18-affiliated hospitals.* ***Raised $20M*** ***https://cbrc.tau.ac.il/*** .
2020-present ***Member, 8400 - The Health Network Program; and at 2025: 8400 US-IL Task Force HELIX***
2019-present ***Chair, The Rothschild Fellowships Committee***
2019-present ***Member, Board*** **of Governors & Senate,** TAU.
2019-present ***Member, Science-Oriented Youth Committee,*** TAU.
2018-present ***Director, Board of Directors, Teva Pharmaceutical Industries Ltd***. Compliance, Science and Technology, and Corporate Governance and Nominating Committees.
2018-present ***Member, Scientific Advisory Board,*** Hospital Universitari (VHIR), Barcelona, Spain.
2018-present ***Member, Scientific Advisory Board, Steering Committee,*** Israel Cancer Association.
2018-present ***Member, Scientific Advisory Board,*** VC VLX Ventures.
2017-present **Member, Advisory Board,** MIT Enterprise Forum of Israel.
2017-present **Kurt and Herman Lion Chair in Nanosciences and Nanotechnologies.**
2017-2022 **Member, Scientific Advisory Board,** Colton & Miles Nadal Institutes for Entrepreneurship
2016-present ***Director,*** **Kahn 3D-BioPrinting Initiative. Raised $15M**
2015-present ***Full Professor of Pharmacology***, **dual affiliation:** Dept. Physiology and Pharmacology, Faculty of Medicine, TAU, and Sagol School of Neuroscience, TAU.
2015-2022 ***Member, Preclinical Dean Committee,*** Faculty of Medicine, TAU.
2014-present ***Member, Scientific Advisory Board,*** Blavatnik Center for Drug Discovery.
2014-2018 ***Chair,*** Department of Physiology and Pharmacology, Faculty of Medicine, TAU.
2010-2016 ***Chair,*** Tel Aviv University Institutional Animal Care and Use Committee (IACUC).
2011-2014 ***Associate Professor***, Dept. Physiology and Pharmacology, Faculty of Medicine, TAU.
2006-2010 ***Assistant Professor,*** Dept. Physiology and Pharmacology, Faculty of Medicine, TAU.
2006-present ***Member,*** Jan Koum Center for Nanoscience and Nanotechnology.
2006-present ***Principal Investigator; Head,*** Cancer Research and Nanomedicine Laboratory.
2005- 2010 ***Visiting Associate Professor***, Harvard Medical School and Children's Hospital Boston, USA.
2002-2005 ***Instructor in Surgery***, Harvard Medical School, Boston, USA.
2002-2005 ***Research Associate,*** Children's Hospital, Boston, USA.

Other Experience and Professional Memberships

2021, 2025 ***Graduate****,* Harvard Business School, 8400 Health Network Leadership Program.
2020 ***Graduate****,* Good Clinical Practice (GCP) course***.*** Obtained a **GCP certificate.**
2019-2020 ***Graduate***, Directors' and Officers' Course, Coller Faculty of Management, Tel Aviv University.
2010- present ***Member****,* The Israel Society for Cancer Research (ISCR).
2015- present ***Member****,* American Chemical Society (ACS) and Israel Chemical Society (ICS).
1997- present ***Active member****,* The American Association for Cancer Research (AACR #75741).
1996- present ***Member****,* The Controlled Release Society (CRS). **PRESIDENT** of the Israeli CRS 2010-2016.
1996- present ***Member****,* The European Association of Cancer Research (EACR #1173).

Selected Awards and Honors

1996-British Council Chevening Award; **1997**-Nagai Foundation Tokyo Graduate Student Award; **1997**-Overseas Research Student Award; **1998**-Wingate Scholarship; **1999**-CRS-3M Graduate Student Outstanding Research Award; **1999-** Vectura Ltd. Postdoctoral Grant; **2000-**A.M. Cook Prize for outstanding Ph.D. Thesis; **2000-** Becton Dickinson Award; **2001**-UICC Award; **2001-**Fulbright scholarship; **2001-** Rothschild scholarship; **2003**-CRS-Ethypharm Outstanding Pharmaceutical Paper Award; **2005-** EACR Young Cancer Researcher highly commended Award; **2006-** Alon Fellowship for outstanding young investigators; **2007**- Marguerite Stolz/Gutwirth Award for Outstanding Junior Faculty; **2008-**Inclusion in the 40 under 40 list of The Marker journal; **2009-**Inclusion in the 50 Most promising women list of the Calcalist journal; **2010-**JULUDAN Prize for the Advancement of Technology in Medicine; **2010-** Elected for **PRESIDENT** of the Israel Chapter of the Controlled Release Society; **2011,2013, 2014**-Inclusion in the 50 Most influential women list of the Globes journal; **2012, 2014, 2018, 2021-**Excellence in Teaching Award, TAU; **2012-**Person of the year in the field of Medicine, Forbes; **2013**- Teva Pharmaceutical Industries Founders Award for the Discovery of new molecular mechanisms and targets that would lead to new therapeutic approaches; **2014**- ERC CoG**; 2016-**Women at the front, Saloona Prize List in the category of Science and Medicine. **2016-** Represented Israel together with 6 Scientist-Architect teams at the 2016 Biennale in Venice, Italy, on the Inspiration of Biology and Medicine on Architecture; **2017-2021-** Research prizes for exceptional publications, TAU; **2018-** Israel Cancer Research Fund Professorship; **2019-** ERC AdG**; 2019**- CRS Translational Science Award. **2019**-Woman of the Year, Globes, Israel**. 2019-** 20 most promising Israelis, Yediot Aharonot. **2020-** Youdim Family Prize for Excellence in Cancer Research. **2020**-Humboldt Foundation Bessel Research Prize. **2020**-Kadar Family Award for Outstanding Research. **2020**-Michael Bruno Memorial Award. **2021-**Salisbury Award for Entrepreneurial Translational Research, National Foundation for Cancer Research. **2021-**3D Printing Industry Award for the Medical Application of the Year. **2021-** AIM-HI accelerator fund Women's Venture Competition People's Choice Award. **2022-** CRS College of Fellows in recognition of an exceptional individual in the field of controlled release who has made outstanding and sustained contributions to the field of delivery science and technology over a minimum of 10 years. **2022-** Forbes List of Power Women. **2022-** Algemeiner Journal's top 100 people positively influencing Jewish life. **2024-** Elected Fellow of the American Institute of Medical and Biological Engineers (AIMBE). **2024-** Ynet List of Leading Women to Follow. **2025**- Tenne Prize for Nanoscale Sciences, Israel Chemical Society (ICS). **2025**- NCK Prize for Medicinal Chemistry, ICS. **2025**- Samyang Award, CRS. **2025-** ICRS Award for Outstanding Achievements in Drug Delivery.

C. CONTRIBUTION TO SCIENCE

1. Development of the first selective nanomedicines bearing angiogenesis inhibitors and the first multi-modality targeted polymer therapeutics combining anti-angiogenic agents with chemotherapeutics. During my postdoctoral fellowship in the lab of the late Judah Folkman, I combined emerging technologies to address an unsolved problem: the selective targeting of anti-angiogenic drugs to tumor blood vessels. I designed a water-soluble conjugate of HPMA copolymer, cathepsin-cleavable linker, and TNP-470, a potent agent but highly toxic in clinical trials. This conjugate accumulated selectively in tumor vessels due to the enhanced permeability and retention (EPR) effect. It enhanced and prolonged the anticancer activity of TNP-470, while preventing TNP-470 from crossing the blood-brain barrier and decreased its accumulation in normal organs, thereby avoiding drug-related toxicities. This new approach, targeting angiogenesis inhibitors specifically to the tumor vasculature, provided a new strategy for the rational design of cancer therapies. This work was published in *Nature Medicine*. This is the first anti-angiogenic nanomedicine. Prior to this work, polymer therapeutics were primarily targeted at cancer cells, whereas the stromal compartment was largely neglected. Several patents were filed on this anti-angiogenic nanomedicine, and it was licensed to a pharmaceutical company. A second project investigated during my postdoctoral fellowship focused on the hyperpermeability associated with angiogenic blood vessels compared to that of normal vessels. I found that several anti-angiogenic agents decrease vascular hyperpermeability of tumor blood vessels, and reduce delayed-type hypersensitivity and pulmonary edema induced by IL-2. I found that the mechanism was via inhibition of VEGF-induced phosphorylation of VEGFR-2, calcium influx, and RhoA activation in endothelial cells. These findings were published in *Cancer Cell*. This was the first time that the inhibition of VEGF-induced vessel hyperpermeability was identified as the mechanism of action of many angiogenesis inhibitors. It suggests that this activity likely contributes to their anti-angiogenic effect, thus they can be used in the treatment of cancer, inflammation, and other angiogenesis-dependent diseases. The understanding that targeting only a single cellular compartment is not sufficient to foster a significant antitumor response, motivated my own lab to focus on the development of combination nanomedicines targeting tumor and host compartments synergistically. This new treatment modality has demonstrated great promise in multiple tumor types, with enhanced antitumor activity and reduced toxicity.

a. **Satchi-Fainaro**, *et al.*, Folkman, Targeting angiogenesis with a conjugate of HPMA copolymer and TNP-470, ***Nature Medicine***, 10(3), 255 (2004).

b. **Satchi-Fainaro**, *et al.*, Folkman, Inhibition of vessel permeability by TNP-470 and its polymer conjugate, caplostatin, ***Cancer Cell***, 7(3), 251 (2005). **(Cover).**
c. Miller, *et al.,* **Satchi-Fainaro,** Targeting bone metastases with bi-specific anticancer and anti-angiogenic polymer-alendronate-taxane conjugate, ***Angewandte Chemie****,* 48(16) 2949 (2009).
d. Markovsky[¥], Baabur-Cohen[¥], **Satchi-Fainaro,** Anticancer polymeric nanomedicine bearing synergistic drug combination is superior to a mixture of individually-conjugated drugs**, *J Controlled Release***, 187:145 (2014).
e. Koshrovski-Michael, *et al.,* **Satchi-Fainaro,** Two-in-One nanoparticle platform induces a strong therapeutic effect of targeted therapies in P-selectin-expressing cancers, ***Science Advances,*** 10(50):eadr4762 (2024).

2. Development of a library of polymeric nanocarriers for the selective delivery of oligonucleotides to tumor and to immune cells. We developed novel approaches using polyglycerol (PG) dendrimers (with Rainer Haag) and amphiphilic polyglutamate amine (PGA) for parenteral delivery of siRNA, miRNA, mRNA to tumors, and PLGA/PLA NP to dendritic cells, eliminating the need to know the tumor location. Using these unique platforms as RNA nanocarriers, we were able to suppress tumor growth and extend the time to progression and survival in mice bearing a variety of tumor types. This unprecedented inhibition of tumor growth by targeting downstream effectors and inhibiting cell proliferation and migration suggests a key role for these anticancer miRNAs in gliomas, including those resistant to temozolomide. Efforts were also focused on using these amphiphilic polyglutamate amine nanocarriers for RNAi delivery for ovarian carcinoma, breast cancer, and osteosarcoma. These projects were part of a Magneton collaboration with Rosetta Genomics (PG) and the MAGNET Rimonim Consortium, which included QBI and Rosetta Genomics (PGA). Recently, we converted our PLGA/PLA DC-targeted nanovaccine platform to deliver siPD-L1 for the treatment of cancer and infectious diseases, such as COVID-19.

a. Shatsberg, *et al.,* **Satchi-Fainaro,** Functionalized nanogels carrying an anticancer microRNA for glioblastoma therapy, ***J Controlled Release***, 239:159 (2016).
b. Polyak[¥], Krivitsky[¥], Scomparin[¥], *et al.,* **Satchi-Fainaro,** Systemic delivery of siRNA by aminated poly(α)glutamate for the treatment of solid tumors, ***J Controlled Release***, 257:132 (2017).
c. Acúrcio RC[¥], Kleiner R[¥], Vaskovich D[¥], *et al.*, **Satchi-Fainaro R,** Intranasal multiepitope PD-L1-siRNA-based nanovaccine: The next-gen COVID-19 immunotherapy, ***Advanced Science,*** *e2404159* (2024). (**Cover)**

3. Identification of the molecular and cellular changes in tumor-associated host-stromal interactions that govern tumor dormancy, progression, and metastasis. Although dormant tumors are highly prevalent in the human population, the underlying mechanisms remain largely unknown. We set out to shed light on the mechanisms underlying tumor dormancy, a fundamental phenomenon in cancer biology. A deeper molecular understanding of tumor dormancy, along with the identification of dormancy markers and therapeutic targets, is likely to alter our perception of tumor progression and, consequently, the way we diagnose and treat the disease. Our findings have led to the discovery of tumor dormancy-associated targets and the development of dormancy-promoting therapies. This project is the basis for an ERC consolidator PolyDorm grant and an ISF grant for which I received the Teva Pharmaceutical Industries Founders Award for "the Discovery of new molecular mechanisms and targets that would lead to new therapeutic approaches". We employed this approach while investigating the molecular mechanisms that govern long-term versus short-term survivorship in patients with PDAC and GBM. Our work, which focused on identifying and validating P-selectin as a novel immune checkpoint and therapeutic target for cancer, led to the co-founding of Selectin Therapeutics, Inc. and the initiation of a clinical trial at Sheba Medical Center **(NCT05909618**).

a. Tiram, *et al.,* **Satchi-Fainaro,** Identification of dormancy-associated microRNAs for the design of osteosarcoma-targeted dendritic polyglycerol nanopolyplexes, ***ACS Nano,*** 10(2): 2028 (2016).
b. Ferber[¥], Tiram[¥], *et al.,* **Satchi-Fainaro**, Co-targeting the tumor endothelium and P-selectin-expressing glioblastoma cells leads to a remarkable therapeutic outcome. ***eLife****,* 6 pii: e25281 (2017).[¥]**Equal contribute**
c. Laue[¥], Pozzi[¥], *et al.*, **Satchi-Fainaro***, Ben-David U*, p53 inactivation drives breast cancer brain metastasis via cell-autonomous and astrocyte-dependent increase of fatty acid metabolism, ***Nature Genetics****, doi: 10.1038/s41588-025-02446-1*(2025). [¥]**Equal contribution *Corresponding authors**.
d. Gibori, *et al.*, **Satchi-Fainaro,** Amphiphilic nanocarrier-induced modulation of PLK1 and miR-34a leads to improved therapeutic response in pancreatic cancer**, *Nature Communications****,*** 9(1):16 (2018).
e. Yeini, *et al.*, **Satchi-Fainaro,** P-selectin inhibition alters microglia immunophenotype and blocks glioblastoma progression, ***Nature Communications****,* 12(1):1912 (2021). **<u>*30-patient clinical trial ongoing.</u>**

4. Development of diagnostic and theranostic nanomaterials for cancer. We developed a novel kind of Turn-ON probes with a near-infrared fluorescence mode of action. These probes were designed to fluorescently report the real-time presence of a specific analyte or enzyme at a pathological site using intravital, non-invasive imaging. We conjugated these probes to a drug-bearing polymer, and while they were Turned-OFF in the bloodstream following intravenous injection, they Turned-ON fluorescently when arriving at the tumor and

releasing the drugs reporting on the (i) location of the tumor (for diagnosis and for image-guided surgery) and (ii) drug release, hence their definition as theranostic nanomedicines. A similar approach was taken for the design of chemiluminescence Turn-ON probes with Doron Shabat. This technology was licensed to Biosynth.

a. Redy-Keisar, *et al.,* **Satchi-Fainaro*,** Shabat*, Synthesis and use of QCy7-derived modular probes for detection and imaging of biologically relevant analytes, ***Nature Protocols***, 9(1), 27 (2014). ***Corr. Authors.**
b. Blau, *et al.,* **Satchi-Fainaro,** Image-guided surgery using near-infrared Turn-ON fluorescent nanoprobes for precise detection of tumor margins, ***Theranostics*****,** 24;8(13):3437 (2018). **(Cover).**
c. Hananya, *et al.,* **Satchi-Fainaro***, Shabat*, A highly-efficient chemiluminescence probe for detection of singlet oxygen in living cells. ***Angewandte Chemie,*** 138(40):13438 (2017).
d. Epshtein¥, Blau¥, Pisarevsky¥, *et al.,* **Satchi-Fainaro,** Polyglutamate-based nanoconjugates for image-guided surgery and post-operative melanoma metastases prevention, ***Theranostics****,* 12:6339 (2022).
e. Blau, *et al.*, **Satchi-Fainaro**, Chemiluminescent probes in cancer biology, ***Nature Reviews Bioengineering***, 1, 648–664 (2023).

5. Rational design of immunotherapies tested on engineered human 3D cancer models incorporating a complete TME. We focus on a multidisciplinary project within the frontier of cancer immunotherapy where nanotechnology, immunology, engineering, and 3D-bioprinting for cancer modeling provide a rationale for novel anticancer treatments. We design precision nanomedicines that stimulate the immune system to attack the tumor cells and TME. We designed PLGA/PLA-based nanovaccines targeting DCs to activate T cells against different cancer types, which we validated on our 3D-bioprinted cancer models. Our work focused on the identification of cancer (neo)antigens, and the creation of relevant nanovaccines led to the foundation of ImmuNovation, Inc. with Helena Florindo. In collaboration with Doron Shabat, we devised another immunotherapy approach, tagging heteroaryl chemotherapeutic drug molecules with a ketone functional group and employing them for ADC. This project is the basis for an ERC Advanced Grant, an ERC PoC, and an ongoing collaboration with Merck.

a. Conniot¥, Scomparin¥, *et al.,* **Satchi-Fainaro***, Florindo*, Immunization with mannosylated nanovaccines and inhibition of the immune-suppressing microenvironment sensitizes melanoma to immune checkpoint modulators, ***Nature Nanotechnology****, 14(9):891-901* (2019). ***Corresponding authors**.
b. Liubomirski, *et al.*, **Satchi-Fainaro**, Potent antitumor activity of anti-HER2 antibody-topoisomerase I inhibitor conjugate based on self-immolative dendritic dimeric-linker, ***J Controlled Release***, 367, 148-157 (2024).
c. Florindo, *et al.*, **Satchi-Fainaro**, Immune approaches against COVID-19, ***Nature Nanotechnology****, 15(8):630* (2020).
d. Neufeld, *et al.*, **Satchi-Fainaro**, Microengineered perfusable 3D-bioprinted glioblastoma model for *in vivo* mimicry of tumor microenvironment, 7(34):eabi9119, ***Science Advances*** (2021). ***80-patient clinical trial**
e. Neufeld, *et al.,* **Satchi-Fainaro**, 3D-Bioprinted cancer models: from basic biology to drug development, ***Nature Reviews Cancer***, 22(12):679-692 (2022).

D. CURRENT RESEARCH SUPPORT

2024-2029 Israel Science Foundation (ISF) #3706/24 (RSF, PI, 10%): *Identifying and targeting mechanisms that govern the progression of gastrointestinal cancers using precision nanomedicines*. *$500K*
2016-2026 Kahn Foundation (RSF, PI, 10%): *3D-bioprinted cancer modeling initiative*. $15M
2017-2026 Merck Global Healthcare (RSF, PI, 5%; Co-PI: Shabat): *Novel antibody-drug conjugates. $1.6M*
2018-2025 Israel Cancer Research Foundation (ICRF) Professorship #PROF-18-602 (RSF, PI, 5%): *P-selectin–targeted nanomedicines and immunotherapy for brain metastases prevention. $350K*
2019-2025 Teva Pharmaceutical Industries (RSF, PI, 3%; Co-PI: Madi): *Designing a non-blocking anti-PD-1 fused to an attenuated IL-2 as a novel immunotherapy evaluated in 3D tumor models. $1.6M*
2022-2025 La Caixa MultiNano@BBM #HR22-00702 (RSF Co-PI, 5%; Co-PI: Florindo): *Multifunctional nano-immunotherapy against breast brain metastases. $500K*
2019-2025 ERC Advanced Grant #835227 3DBrainStrom (RSF, PI, 50%): *Brain metastases: Deciphering tumor-stroma interactions in 3D for nanomedicines rational design. $2.5M*
2023-2025 ERC PoC #101113390 (RSF, PI, 2%); **ImmuNovation:** *RNA/peptide-based nanovaccines. $175K*
2024-2027 La Caixa PINT #HR24-00968 (RSF, Co-PI, 5%; Co-PIs: Vicent, Florindo): *Precision ImmuneNanoTherapy targeting tumor-immune-stroma interactions against pancreatic cancer. $396K*
2024-2028 Binational Science Foundation (BSF) #2023077 (RSF, Co-PI 5%; Co-PIs: Heller, Raju): *Enhancing drug delivery past the BBB using P-selectin targeted nanotherapies for pediatric brain tumors. $350K*
2025-2028 EIC Transition #101214384TIMNano(RSF,PI-50%): Restoring immunity control of GI cancers.*$2.5M*

E. SCIENTIFIC PUBLICATIONS https://www.ncbi.nlm.nih.gov/pubmed/?term=satchi-fainaro

Additional information: Published over 170 manuscripts, edited 2 books, 13 book chapters, over 13,000 citations, over 600 abstracts, keynote, and plenary presentations, h-index 65, 95 patent applications/granted, co-founded 3 spin-offs based on the lab's research, and initiated 2 clinical trials at Sheba Medical Center.

ORIGINAL ARTICLES

1. **Satchi R**, Connors TA, Duncan R, PDEPT: Polymer-directed enzyme prodrug therapy. 1. HPMA copolymer-cathepsin B and PK1 as a model combination, ***British Journal of Cancer,*** 85(7), 1070-1076 (2001).
2. **Satchi-Fainaro R**, Wrasidlo W, Lode HN, Shabat D, Synthesis and characterization of a catalytic antibody–HPMA copolymer conjugate as a tool for tumor selective prodrug activation**, *Bioorganic & Medicinal Chemistry,*** 10 (9), 3023-3029 (2002).
3. **Satchi-Fainaro R**, Hailu H, Davies JW, Summerford C, Duncan R, PDEPT: Polymer directed enzyme prodrug therapy. 2. HPMA copolymer-β-lactamase and HPMA copolymer-cephalosporin-doxorubicin as a model combination, ***Bioconjugate Chemistry***, 14(4), 797-804 (2003).
4. Périno S, Contino-Pépin C, **Satchi-Fainaro R**, Butterfield C, Pucci B, Inhibition of angiogenesis by THAM-derived cotelomers endowed with thalidomide moieties, ***Bioorganic and Medicinal Chemistry Letters***, 14(2), 421-425 (2004).
5. **Satchi-Fainaro R**, Puder M, Davies J, Tran H, Sampson DA, Greene AK, Corfas G, Folkman J, Targeting angiogenesis with a conjugate of HPMA copolymer and TNP-470, ***Nature Medicine***, 10(3), 255-261 (2004). (**Commentaries in:** Hutchinson E. Angiogenesis: A helping hand, *Nature Reviews Cancer* 4: 248-249, 2004; Ahmad K. Modified angiogenesis inhibitor for selective targeting of tumors; *The Lancet Oncology* 5: 265, 2004; Polymer-angiogenesis inhibitor combination may be less toxic, *JNCI* March 3, 2004; and Acosta F, Parsa AT, More effective targeting of tumor angiogenesis, *Neurosurgery*, 54 (5): N8-N8 May 2004; *Harvard University gazette*, February 26, 2004, Cancer drug given new life, Its toxic side effects eliminated, Cromie WJ; Focus, McCaffrey P, March 19, 2004 Angiogenesis Inhibitors Revived, Revealed in Progress Against Cancer).
6. **Satchi-Fainaro R**, Mamluk R, Wang L, Short SM, Nagy JA, Feng D, Dvorak AM, Dvorak HF, Puder M, Mukhopadhyay D, Folkman J, Inhibition of vessel permeability by TNP-470 and its polymer conjugate, caplostatin, ***Cancer Cell***, 7(3), 251-261 (2005). (Commentaries in: Viinikka T, Leak-patching protein shuts down tumor growth, swelling, *Focus*, March 25, 2005). **(Cover)**
7. Tjin Tham Sjin RM, **Satchi-Fainaro R**, Birsner AE, Ramanujam VM, Folkman J, Javaherian K, A 27 amino acid synthetic peptide corresponding to the NH_2-terminal zinc binding domain of endostatin is responsible for its antitumor activity, ***Cancer Research***, 65(9), 3656-3663 (2005).
8. Javid PJ, Greene AK, Garza J, Gura K, Alwayn IAP, Voss S, Nose V, **Satchi-Fainaro R**, Zauche B, Mulkern RV, Jaksic T, Bistrian B, Folkman J, Puder M, The route of lipid administration affects parenteral nutrition–induced hepatic steatosis in a mouse model**, *Journal of Pediatric Surgery***, 40(9), 1446-1453 (2005).
9. Becker CM, Wright RD, **Satchi-Fainaro R**, Funakoshi T, Folkman J, Kung AL, D'Amato RJ, A novel non-invasive model of endometriosis for monitoring the efficacy of antiangiogenic therapy, ***American Journal of Pathology*****,** 168(6) 2074-2084 (2006).
10. Nahari D, **Satchi-Fainaro R**, Chen M, Mitchell I, Task LB, Liu Z, Kihneman J, Carroll AB, Terada LS, Nwariaku F, Tumor Cytotoxicity and Endothelial Rac Inhibition Induced by TNP-470 in Anaplastic Thyroid Cancer, ***Molecular Cancer Therapeutics,*** 6(4), 1329-1337 (2007).
11. Sagi A, Segal E, **Satchi-Fainaro R***, Shabat D*, Remarkable drug-release enhancement with an elimination-based AB_3 self-immolative dendritic amplifier, ***Bioorganic and Medicinal Chemistry***, 15(11), 3720–3727 (2007). ***Corresponding authors.**
12. Chesler L, Goldenberg DD, Seales IT, **Satchi-Fainaro R**, Grimmer M, Collins R, Struett C, Nguyen KN, Kim G, Tihan T, Bao Y, Brekken RA, Bergers G, Folkman J, Weiss WA**,** Malignant progression and blockade of angiogenesis in a murine transgenic model of neuroblastoma**, *Cancer Research***, 67(19), 9435-9442 (2007).
13. Ryppa C, Mann-Steinberg H, Fichtner I, Weber H, **Satchi-Fainaro R**, Biniossek M, Kratz F, *In vitro* and *in vivo* evaluation of doxorubicin conjugates with the divalent peptide E-[c(RGDfK)$_2$] that target integrin $\alpha_v\beta_3$, ***Bioconjugate Chemistry,*** 19(7), 1414-1422. (2008).

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PATENTS (Selected from 95)

Activatable fluorogenic compounds and uses thereof as near infrared probes	Granted	United states	14/027,219	9,341,630
Activatable fluorogenic compounds and uses thereof as near infrared probes	Granted	United states	15/131,129	10,071,983
Polymeric systems and uses thereof in theranostic applications	Granted	United states	15/124,360	10,532,113
Taggable heteroaromatic drugs and conjugates thereof	Granted	United states	15/737,247	10,420,845
Taggable heteroaromatic drugs and conjugates thereof	Granted	Europe	16811143.3	3310787
Taggable heteroaromatic drugs and conjugates thereof	Granted	Germany	16811143.3	60 2016 028 882.6
Taggable heteroaromatic drugs and conjugates thereof	Granted	France	16811143.3	3310787
Taggable heteroaromatic drugs and conjugates thereof	Granted	Italy	16811143.3	3310787
Taggable heteroaromatic drugs and conjugates thereof	Granted	Spain	16811143.3	3310787
Taggable heteroaromatic drugs and conjugates thereof	Granted	Switzerland	16811143.3	3310787
Taggable heteroaromatic drugs and conjugates thereof	Granted	United kingdom	16811143.3	3310787
Polyaminated polyglutamic acid-containing compounds and uses thereof for delivering oligonucleotides	Granted	United states	15/764,429	
Chemiluminescent probes for diagnostics and in vivo imaging	Granted	United states	16/072,848	10/660,974
Chemiluminescent probes for diagnostics and in vivo imaging	Granted	Europe	17743844.7	3408349
Chemiluminescent probes for diagnostics and in vivo imaging	Granted	Canada	3,011,328	3,011,328
Chemiluminescent probes for diagnostics and in vivo imaging	Granted	Brazil	1.12018e+12	112018015334 6
Chemiluminescent probes for diagnostics and in vivo imaging	Granted	China	2.0178e+11	Zl201780020284.2
Chemiluminescent probes for diagnostics and in vivo imaging	Granted	Japan	2018-539034	6915943
Chemiluminescent probes for diagnostics and in vivo imaging	Granted	South korea	10-2018-7024288	10-2717614
Chemiluminescent probes for diagnostics and in vivo imaging	Granted	India	2.01827e+11	450600
Chemiluminescent probes for diagnostics and in vivo imaging	Granted	United states	16/850,333	11,179,482
Chemiluminescent probes for diagnostics and in vivo imaging	Granted	Belgium	17743844.7	3408349
Chemiluminescent probes for diagnostics and in vivo imaging	Granted	France	17743844.7	3408349
Chemiluminescent probes for diagnostics and in vivo imaging	Granted	Germany	17743844.7	3408349

Chemiluminescent probes for diagnostics and in vivo imaging	Granted	United kingdom	17743844.7	3408349
Chemiluminescent probes for diagnostics and in vivo imaging	Granted	Ireland	17743844.7	3408349
Chemiluminescent probes for diagnostics and in vivo imaging	Granted	Italy	17743844.7	3408349
Chemiluminescent probes for diagnostics and in vivo imaging	Granted	Netherlands	17743844.7	3408349
Chemiluminescent probes for diagnostics and in vivo imaging	Granted	Spain	17743844.7	3408349
Chemiluminescent probes for diagnostics and in vivo imaging	Granted	Switzerland	17743844.7	3408349
Chemiluminescent probes for diagnostics and in vivo imaging	Granted	United states	16/850,333	11,179,482
Chemiluminescent probes for diagnostics and in vivo imaging	Granted	United states	17/451,536	11,931,429
Chemiluminescent probes for diagnostics and in vivo imaging	Granted	Brazil	122022024633 8	Br 122022024633 8
Chemiluminescent probes for diagnostics and in vivo imaging	Granted	Brazil	122022024635 4	122022024635 4
Chemiluminescent probes for diagnostics and in vivo imaging	Granted	United states	18/428,591	12,357,709
Polymeric conjugates and uses thereof	Granted	United states	16/079,123	11,666,656
Polymeric conjugates and uses thereof	Granted	Europe	17755949.9	3419668
Polymeric conjugates and uses thereof	Granted	France	17755949.9	3419668
Polymeric conjugates and uses thereof	Granted	Germany	17755949.9	3419668
Polymeric conjugates and uses thereof	Granted	United kingdom	17755949.9	3419668
Three-dimensional tumor models, methods of manufacturing same and uses thereof	Granted	United states	16/476,323	12,486,494
Three-dimensional tumor models, methods of manufacturing same and uses thereof	Granted	Europe	18736000.3	
Polymeric nanovaccines and uses thereof	Granted	Europe	19901899.5	
Polymeric nanovaccines and uses thereof	Granted	United states	17/418,977	
Polymeric nanovaccines and uses thereof	Granted	United states	19/298,211	
Methods of treating glioblastoma	Granted	United states	18/122,194	
Methods of treating glioblastoma	Granted	Europe	21868882.8	
Modulators of pd-l1/pd-1 interaction and uses thereof	Granted	United states	18/235,392	
Modulators of pd-l1/pd-1 interaction and uses thereof	Granted	Europe	22755712.1	
Water soluble prodrug, conjugates and uses thereof	Granted	United states	18/292,046	
Three-dimensional tumor model of glioblastoma and brain metastasis, methods of manufacturing same and uses thereof	Granted	Europe	22848834.2	
Treatment of brain metastasis	Granted	United states	19/038,800	

P-selectin inhibition for treatment of cancer	Granted	United states	18/885,825	
Bioreactors for perfusing cells	Filed	United states	19/349,013	
Bioreactors for perfusing cells	Filed	Europe	24784549.8	
P-selectin targeted nanoparticles and uses thereof	Granted	United states	19/287,868	
P-selectin targeted nanoparticles and uses thereof	Granted	Europe	24749837.1	