GENERAL INFORMATION

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EDUCATION

1996 - 2001	Undergraduate and MSc, Sofia University, Sofia, Bulgaria, MSc. Molecular Biology and Biochemistry.
2007 - 2012	PhD, Stony Brook University, Stony Brook, NY, Molecular and Cellular Biology.

POSITIONS AND PROFESSIONAL EXPERIENCE

2024 - present	Assistant Professor, RAS signaling in pediatric cancers, Department of Pediatrics, Oregon Health Science University, Portland, Oregon.
2019 - 2024	Assistant Professor, RAS signaling in pediatric cancers, UT Health San Antonio, Greehey Children's Cancer Research Institute, San Antonio, Texas.
2017 - 2018	Visiting fellow, RAS signaling in pediatric cancers, UT Health San Antonio, Greehey Children's Cancer Research Institute, San Antonio, Texas.
2013 - 2018	Postdoctoral fellow, RAS signaling in pancreatic cancer, University of North Carolina at Chapel Hill, North Carolina.
2008 - 2012	Graduate Research Assistant, Molecular and Cellular Biology program Stony Brook University, Stony Brook, New York.
2008 - 2009	Graduate Teaching Assistant, Molecular and Cellular Biology program Stony Brook University, Stony Brook, New York.
2004 – 2007	Research Assistant, Department of Radiation Oncology, University of North Carolina at Chapel Hill, North Carolina.
2004 – 2007	Research fellow, Retinoic acid mode of action in human cancers, Dartmouth Medical School, Dept. Pharmacology and Toxicology.

OTHER APPOINTMENTS AND MEMBERSHIPS:

2024	Temporary member, NIH Radiation Therapy, Radiation Biology and Nanoparticle Based Therapeutics (RTBN) SBIR/STTR SEP panel
2023	Temporary member, NCI Advancing Therapeutics Study A panel
2020 - current	Member, Children's Oncology Group
2021 - current	Reviewer, Children's Cancer Research Fund
2019	Ad hoc Reviewer, Molecular Cancer Therapeutics - AACR Publications
2010 - current	Member, American Association of Cancer Research

HONORS AND AWARDS

2024	Alex's Lemonade Stand Foundation R-accelerated Award
2023	Department of Defense NFRP new investigator award
2023	Summer's way foundation early investigator retreat invited speaker
2022	NCI MERIT Award
2022	GCCRI Basic and Translational Science Award
2022	Voelcker Fund Young Investigator Award
2021	Voelcker Fund Young Investigator Pilot Award
2020	Summer's way foundation early investigator retreat invited speaker
2017	AACR Scholar in training award
2016	Best Poster award and selected talk, Cancer Molecular Therapeutics Research Conference, July 2016, Seattle, WA
2016	Selected talk, Postdoc-Faculty Research Day, October 2016, Lineberger Comprehensive Cancer Center, UNC-CH, Chapel Hill, NC
2015	American Cancer Society postdoctoral fellowship award
2015	Ruth L. Kirschstein National Research Service Award (NRSA) individual postdoctoral fellowship (F32), (declined to accept ACS fellowship)
2014	Ruth L. Kirschstein National Research Service Award (NRSA) Institutional Research Training Grant.
2014	Selected talk, Postdoc-Faculty Research Day, September 2014, Lineberger Comprehensive Cancer Center, UNC-CH, Chapel Hill, NC
2009	Best Poster award and selected talk, Molecular and Cellular Biology program retreat, Stony Brook University, September 2009, Stony Brook, NY

RESEARCH

Expertise and research interests

P53 family members in cancer and oxidative stress. P53 family members (p53, p63 and p73) are transcription factors with numerous important functions in both disease as well as normal development. P53 is unequivocally known as master tumor suppressor and important mediator of cellular stress response both through transcription-dependent and -independent functions. The other two family members p63 and p73 play more central developmental roles. My predoctoral studies involved 3 major projects related to p53. First project uncovered important transcription-independent function of p53 during ischemia-reperfusion brain injury and regulation of necrotic cell death. Second project identified synthetic lethal interaction between the p53 reactivating compound Nutlin and HSP90 inhibitor 17AAG in solid tumors. Third project demonstrated important role of mitochondrial p53 functions during p53 reactivation with the small molecule Nutlin. I have also contributed to a project that described therapeutic potential of targeting p53 to mitochondria by demonstrating that adenoviral delivery to mitochondria targeted p53 induced cell death in tumor cells. Finally, by demonstrating that genetic ablation of p73 inhibits neural stem cell self-renewal, I contributed to a project describing essential role for p73 in the maintenance of neural stem cells and neurogenesis.

Selected publications:

a) Vaseva AV, Marchenko ND, Ji K, Tsirka SE, Holzmann S, Moll UM. P53 opens the mitochondrial permeability transition pore to trigger necrosis. Cell. 2012 Jun 22;149(7):1536-48. Cover story.

b) Vaseva AV, Yallowitz AR, Marchenko ND, Xu S, Moll UM. Blockade of Hsp90 by 17AAG antagonizes MDMX and synergizes with Nutlin to induce p53-mediated apoptosis in solid tumors. Cell Death Dis. 2011 May 12;2:e156.

c) Vaseva AV, Marchenko ND, Moll UM. The transcription-independent mitochondrial p53 program is a major contributor to Nutlin-induced apoptosis in tumor cells. Cell Cycle. 2009 Jun 1;8(11):1711-9.

d) Talos F, Abraham A, Vaseva AV, Holembowski L, Tsirka SE, Scheel A, Bode D, Dobbelstein M, Brück W, Moll UM. p73 is an essential regulator of neural stem cell maintenance in embryonal and adult CNS neurogenesis. Cell Death Differ. 2010 Dec;17(12):1816-29.

RAS and MYC in RAS-driven cancers. During my postdoctoral training in the laboratory of Dr. Channing Der I gained expertise in defining therapeutic approaches for RAS-driven cancers. My studies in KRAS-driven pancreatic ductal adenocarcinoma (PDAC) have made significant impact toward understanding how the two major oncogenes RAS and MYC cooperate to promote tumor cell growth and maintenance. We demonstrated that maintenance of MYC protein stability through RAS oncogenic activation presents an important venue to uncover MYC-destabilization therapeutic strategies. I established a tool for real-time tracking of MYC protein stability in live cells which facilitated the identification of ERK5 and CDK9 as a novel regulator of MYC protein stability in

KRAS-driven PDAC. In another study, I contributed toward the design and identification of RAS isoform- and mutation-specific tools.

Selected publications:

a) Blake DR, Vaseva AV, Hodge RG, Kline MP, Gilbert TSK, Tyagi V, Huang D, Whiten GC, Larson JE, Wang X, Pearce KH, Herring LE, Graves LM, Frye SV, Emanuele MJ, Cox AD, Der CJ. Application of a MYC degradation screen identifies sensitivity to CDK9 inhibitors in KRAS-mutant pancreatic cancer. Sci Signal. 2019 Jul 16;12(590).

b) Vaseva AV, Blake DR, Gilbert TSK, Ng S, Hostetter G, Azam SH, Ozkan-Dagliyan I, Gautam P, Bryant KL, Pearce KH, Herring LE, Han H, Graves LM, Witkiewicz AK, Knudsen ES, Pecot CV, Rashid N, Houghton PJ, Wennerberg K, Cox AD, Der CJ. KRAS Suppression-Induced Degradation of MYC Is Antagonized by a MEK5-ERK5 Compensatory Mechanism. Cancer Cell. 2018 Nov 12;34(5):807-822.

c) Waters AM, Ozkan-Dagliyan I, Vaseva AV, Fer N, Strathern LA, Hobbs GA, Tessier-Cloutier B, Gillette WK, Bagni R, Whiteley GR, Hartley JL, McCormick F, Cox AD, Houghton PJ, Huntsman DG, Philips MR, Der CJ. Evaluation of the selectivity and sensitivity of isoform- and mutation-specific RAS antibodies. Sci Signal. 2017 Sep 26;10(49).

RAS in pediatric cancers. During my visits in the laboratory of Dr**.** Peter Houghton, and later as assistant professor, I gained expertise in pediatric solid tumors and use of PDX models for translational research. We developed several projects that aim to define targeted therapeutic strategies for RAS/MAPK-driven pediatric cancers such as rhabdomyosarcoma, neuroblastoma, NF1-associated malignant peripheral nerve sheath tumor. We showed that the ERK MAPK pathway is central to RAS dependency in rhabdomyosarcoma cells, however response to single agent MEK or ERK inhibitors is limited due to rebound activation of the upstream MAP kinase CRAF. Vertical targeting of the RAF-MEK-ERK cascade, and particularly co-targeting of CRAF and MEK/ERK, or the combination of type 2 RAF inhibitors with MEK or ERK inhibitors, have synergistic activity and potently suppress *RAS* mutant RMS tumor growth. In collaboration with Novartis we evaluated the *in vivo* response of *RAS* mutated rhabdomyosarcoma patient-derived xenograft models to clinically relevant schedules with the combination of type 2 RAF inhibitor and a MEK inhibitor. Marked tumor regression was seen in a number of PDX models. These results were the basis for development of a clinical protocol which was developed by the Childrens Oncology Group.

Selected publications:

a) Ghilu S, Morton CL, Vaseva AV, Zheng S, Kurmasheva RT, Houghton PJ. Approaches to identifying drug resistance mechanisms to clinically relevant treatments in childhood rhabdomyosarcoma. Cancer Drug Resist 2021;4

b) Garcia N, Del Pozo V, Yohe ME, Goodwin CM, Shackleford TJ, Wang L, Baxi K, Chen Y, Rogojina AT, Zimmerman SM, Peer CJ, Figg WD, Ignatius MS, Wood KC, Houghton PJ and Vaseva AV*. Vertical inhibition of the RAF-MEK-ERK cascade induces myogenic differentiation, apoptosis, and tumor regression in H/NRAS Q61X-mutant rhabdomyosarcoma. Mol Cancer Ther. 2021 Nov 4. doi: 10.1158/1535-7163.MCT-21-0194. Online ahead of print. *Corresponding author.

c) US-20230321110-A1, COMBINATION THERAPY OF A RAF INHIBITOR AND A MEK INHIBITOR FOR THE TREATMENT OF SARCOMA. Giordano Caponigro-Novartis. Vesselina Cooke-Novartis, Angelina Vaseva-UT Health San Antonio.

d) Vaseva AV and Yohe ME. Targeting RAS in pediatric cancer: is it becoming a reality? Curr Opin Pediatr. 2020 Feb;32(1):48-56.

Selected Scientific Presentations

1. **Speaker,** Summer's way foundation early investigator retreat, October 2023
2. **Poster Presentation**, RAS Summit, Boston September 2023
3. **Speaker,** Cancer Development and Progression Program Retreat, Mays Cancer Center, UT Health San Antonio.
4. **Speaker**, San Antonio Pediatric Cancer Symposium, February 2022
5. **Speaker,** Summer's way foundation early investigator retreat, October 2021
6. **Speaker**, COG Sarcoma working group, Atlanta, **September 2019**.
7. **Poster presentation**, AACR Recent Advances in Pediatric Cancer Research, **September 2019**, Montreal, Canada.
8. **Poster presentation**, AACR Targeting RAS-driven cancers, **December 2018**, San Diego, CA.
9. **Poster presentation**, Molecular Therapeutics of Cancer Research, **July 2018**, Salt Lake City, UT.
10. **Poster presentation**, RAS initiative symposium, **December 2017**, Washington, DC.
11. **Speaker**, Lineberger Comprehensive Cancer Center Postdoc-Faculty Day, **September 2017**.
12. **Poster presentation**, AACR annual meeting, **April 2017**, Washington, DC.
13. **Poster presentation and short talk**, Molecular Therapeutics of Cancer Research, **July 2016**, Seattle, WA.
14. **Poster presentation**, RAS initiative symposium, **December 2015**, Washington, DC.
15. **Speaker**, University of North Carolina Postdoc-Faculty Day, **October 2014**.
16. **Poster presentation**, Cell Death, **October 2011**, CSHL, NY.

Bibliography

Peer Reviewed Research Articles:

1. Hebron KE, Wan X, Roth JS, Liewehr DJ, Sealover NE, Frye WJE, Kim A, Stauffer S, Perkins OL, Sun W, Isanogle KA, Robinson CM, James A, Awasthi P, Shankarappa P, Luo X, Lei H, Butcher D, Smith R, Edmondson EF, Chen JQ, Kedei N, Peer CJ, Shern JF, Figg WD, Chen L, Hall MD, Difilippantonio S, Barr FG, Kortum RL, Robey RW, Vaseva AV, Khan J, Yohe ME. The combination of trametinib and ganitumab is effective in RAS-mutated PAX-fusion negative rhabdomyosarcoma models. Clin Cancer Res. 2022 Nov 2; PubMed PMID: 36322002.
2. Hensch NR, Bondra K, Wang L, Sreenivas P, Zhao XR, Modi P, Vaseva AV, Houghton PJ, Ignatius MS. Sensitization to Ionizing Radiation by MEK Inhibition Is Dependent on SNAI2 in Fusion-Negative Rhabdomyosarcoma. Mol Cancer Ther. 2023 Jan 3;22(1):123-134; PubMed PMID: 36162055.
3. Shackleford TJ, Hariharan S, Vaseva AV, Alagoa K, Espinoza M, Bid H, Zhong H, Phelps DA, Roberts RD, Cam H, London CA, Guttridge DC, Chen Y, Rao MK, Shiio Y, and Houghton PJ. Redundant Signaling as the Predominant mechanism for Resistance to Antibodies Targeting IGF-1R in Cells Derived from Childhood Sarcoma. (in press, **Molecular Cancer Therapeutics**).
4. Obasaju P, Yohe ME, Pollard K, Vaseva AV, Calizo A, Allen AN, Shreck KC, Kessler L, Wang J, Pratilas CA. Targeting farnesylation as a novel therapeutic approach in HRAS-mutant rhabdomyosarcoma. **Oncogene.** 2022 Apr 22. PubMed PMID: 35459782.
5. Ghilu S, Morton CL, Vaseva AV, Zheng S, Kurmasheva RT, Houghton PJ. Approaches to identifying drug resistance mechanisms to clinically relevant treatments in childhood rhabdomyosarcoma. **Cancer Drug Resist.** Cancer Drug Resist 2022;5:80-9. PubMed PMID: 35450020.
6. Garcia N, Del Pozo V, Yohe ME, Goodwin CM, Shackleford TJ, Wang L, Baxi K, Chen Y, Rogojina AT, Zimmerman SM, Peer CJ, Figg WD, Ignatius MS, Wood KC, Houghton PJ, Vaseva AV*. Vertical Inhibition of the RAF-MEK-ERK Cascade Induces Myogenic Differentiation, Apoptosis, and Tumor Regression in H/NRASQ61X Mutant Rhabdomyosarcoma. **Mol Cancer Ther**. 2022 Jan;21(1):170-183. PubMed PMID: 34737198; * Corresponding author.
7. Wang L, Hensch NR, Bondra K, Sreenivas P, Zhao XR, Chen J, Moreno Campos R, Baxi K, Vaseva AV, Sunkel BD, Gryder BE, Pomella S, Stanton BZ, Zheng S, Chen EY, Rota R, Khan J, Houghton PJ, Ignatius MS. SNAI2-Mediated Repression of BIM Protects Rhabdomyosarcoma from Ionizing Radiation**. Cancer Res.** 2021 Nov 1. PubMed PMID: 34462275.
8. Blake DR, Vaseva AV, Hodge RG, Kline MP, Gilbert TSK, Tyagi V, Huang D, Whiten GC, Larson JE, Wang X, Pearce KH, Herring LE, Graves LM, Frye SV, Emanuele MJ, Cox AD, Der CJ. Application of a MYC degradation screen identifies sensitivity to CDK9 inhibitors in KRAS-mutant pancreatic cancer. **Sci Signal.** 2019 Jul 16;12(590). PubMed PMID: 31311847.
9. Vaseva AV, Blake DR, Gilbert TSK, Ng S, Hostetter G, Azam SH, Ozkan-Dagliyan I, Gautam P, Bryant KL, Pearce KH, Herring LE, Han H, Graves LM, Witkiewicz AK, Knudsen ES, Pecot CV, Rashid N, Houghton PJ, Wennerberg K, Cox AD, Der CJ. KRAS Suppression-Induced MYC Degradation is Antagonized by a MEK5-ERK5 Compensatory Mechanism**. Cancer Cell**. 2018 Nov 12;34(5). PubMed PMID: 30423298.

10. Waters AM, Ozkan-Dagliyan I, Vaseva AV, Fer N, Strathern LA, Hobbs GA, Tessier-Cloutier B, Gillette WK, Bagni R, Whiteley GR, Hartley JL, McCormick F, Cox AD, Houghton PJ, Huntsman DG, Philips MR, Der CJ. Evaluation of the selectivity and sensitivity of isoform- and mutation-specific RAS antibodies. **Sci Signal**. 2017 Sep 26;10(498). PubMed PMID: 28951536.
11. Klingler S, Guo B, Yao J, Yan H, Zhang L, Vaseva AV, Chen S, Canoll P, Horner JW, Wang YA, Paik JH, Ying H, Zheng H**.** Development of Resistance to EGFR-Targeted Therapy in Malignant Glioma Can Occur through EGFR-Dependent and -Independent Mechanisms. **Cancer Res**. 2015 May 15;75(10):2109-19. PubMed PMID: 25808866.
12. Vaseva AV, Marchenko ND, Ji K, Tsirka SE, Holzmann S, Moll UM. P53 opens the mitochondrial permeability transition pore to trigger necrosis. **Cell.** 2012 Jun 22;149(7):1536-48. PubMed PMID: 22726440.
13. Zuber J, Rappaport AR, Luo W, Wang E, Chen C, Vaseva AV, Shi J, Weissmueller S, Fellmann C, Taylor MJ, Weissenboeck M, Graeber TG, Kogan SC, Vakoc CR, Lowe SW. An integrated approach to dissecting oncogene addiction implicates a Myb coordinated self-renewal program as essential for leukemia maintenance**.** **Genes Dev**. 2011 Aug 1;25(15):1628-40. PubMed PMID: 21828272.
14. Vaseva AV, Yallowitz AR, Marchenko ND, Xu S, Moll UM. Blockade of Hsp90 by 17AAG antagonizes MDMX and synergizes with Nutlin to induce p53-mediated apoptosis in solid tumors. **Cell Death Dis**. 2011 May 12;2:e156. PubMed PMID: 21562588.
15. Talos F, Abraham A, Vaseva AV, Holembowski L, Tsirka SE, Scheel A, Bode D, Dobbelstein M, Brück W, Moll UM. p73 is an essential regulator of neural stem cell maintenance in embryonal and adult CNS neurogenesis. **Cell Death Differ**. 2010 Dec;17(12):1816-29. PubMed PMID: 21076477.
16. Zimmer Y, Vaseva AV, Medová M, Streit B, Blank-Liss W, Greiner RH, Schiering N, Aebersold DM. Differential inhibition sensitivities of MET mutants to the small molecule inhibitor SU11274. **Cancer Lett**. 2010 Mar 28;289(2):228-36. PubMed PMID: 19783361.
17. Kimple RJ*, Vaseva AV*, Cox AD, Baerman KM, Calvo BF, Tepper JE, Shields JM, Sartor CI. Radiosensitization of epidermal growth factor receptor/HER2-positive pancreatic cancer is mediated by inhibition of Akt independent of ras mutational status**.** **Clin Cancer Res**. 2010 Feb 1;16(3):912-23. PubMed PMID: 20103665; *authors with equal contribution.
18. Hagn F, Klein C, Demmer O, Marchenko N, Vaseva A, Moll UM, Kessler H. BclxL changes conformation upon binding to wild-type but not mutant p53 DNA binding domain. **J Biol Chem**. 2010 Jan 29;285(5):3439-50. PubMed PMID: 19955567.
19. Vaseva AV, Marchenko ND, Moll UM. The transcription-independent mitochondrial p53 program is a major contributor to nutlin-induced apoptosis in tumor cells. **Cell Cycle**. 2009 Jun 1;8(11):1711-9. PubMed PMID: 19411846.
20. Palacios G, Crawford HC, Vaseva A, Moll UM. Mitochondrially targeted wild-type p53 induces apoptosis in a solid human tumor xenograft model. **Cell Cycle**. 2008 Aug 15;7(16):2584-90. PubMed PMID: 18719383.
21. Freemantle SJ, Vaseva AV, Ewings KE, Bee T, Krizan KA, Kelley MR, Hattab EM, Memoli VA, Black CC, Spinella MJ, Dmitrovsky E. Repression of cyclin D1 as a target for germ cell tumors. **Int J Oncol**. 2007 Feb;30(2):333-40. PubMed PMID: 17203214.

22. White KA, Yore MM, Warburton SL, Vaseva AV, Rieder E, Freemantle SJ, Spinella MJ. Negative feedback at the level of nuclear receptor coregulation. Self-limitation of retinoid signaling by RIP140. **J Biol Chem**. 2003 Nov 7;278(45):43889-92. PubMed PMID: 14506269.

Review articles

1. Vaseva AV, Yohe ME. Targeting RAS in pediatric cancer: is it becoming a reality? **Curr Opin Pediatr**. 2020 Feb;32(1):48-56. PubMed PMID: 31815779.
2. Vaseva AV, Moll UM. The mitochondrial p53 pathway. **Biochim Biophys Acta.** 2009 May;1787(5):414-20. PubMed PMID: 19007744.

Book chapters

1. Vaseva AV, Moll UM. Identification of p53 in mitochondria. **Methods Mol Biol**. 2013;962:75-84. doi: 10.1007/978-1-62703-236-0_6. PMID: 23150438.

Patents

US-20230321110-A1, COMBINATION THERAPY OF A RAF INHIBITOR AND A MEK INHIBITOR FOR THE TREATMENT OF SARCOMA. Giordano Caponigro-Novartis. Vesselina Cooke-Novartis, Angelina Vaseva-UT Health San Antonio.