

# PICHAIRAMAN, PhD

143 Montrose Ave, Bryn Mawr PA, 19010

(857) 600 - 6097

Pichai.Raman@gmail.com

---

## QUALIFICATIONS

Accomplished and versatile bioinformatics leader with 20 years of experience in computational biology and AI/ML with relevant experience in cancer informatics, biomarker development, gene therapy, and the generation of scalable genomic workflows and applications. Proven track record in advancing drug discovery pipelines from concept through development, leveraging deep expertise in machine learning, Omics processing, cheminformatics, and knowledge bases. Skilled in leading teams for data workflow development, programming, and GUI creation for display and reporting of scientific data. Hands on experience in target identification and candidate triaging and selection. Strong foundation in Machine Learning and statistics for analysis, integration, and visualization of 'Big Data'. Experience with multiple data types including RNA-Sequencing, WES/WGS, single-cell, ATAC-Seq, ChIP-Seq, siRNA / shRNA, biomarker, and proteomics data. Demonstrated success in integrating cutting-edge computational technologies into oncology, immunology, and neuroscience programs to deliver transformative health solutions.

## RESEARCH EXPERIENCE

### Spark Therapeutics

**Responsible for leading the Computational Biology and Machine Learning team in support of research and technical development projects including**

- **NGS Product Characterization:** Overseeing next-generation sequencing (NGS) automated workflow for the characterization of vectors and plasmids, ensuring drug product quality
- **Computational Biology Support:** Providing pivotal support for research initiatives with single-cell and bulk NGS, imaging analysis, and advanced analytical techniques for target identification and candidate selection
- **Machine Learning Capability Development:** Leading the development and implementation of cutting-edge deep learning and machine learning strategies to optimize upstream and downstream technical development and enhance discovery platforms within the gene therapy landscape.

### GlaxoSmithKline

**Defining the data strategy and developing workflows and endpoints to support Oncology research and clinical activities and projects, while leading a matrixed team across functions to ensure alignment and execution. Key initiatives listed below.**

- **Oncology Workflows:** Spearheaded the development of scalable workflows and tools for translational oncology team to enhance biomarker analytics. Championed strategic AI/ML initiatives to streamline oncology drug discovery, integrating cheminformatics and predictive analytics.
- **Data Frameworks:** Led strategic initiatives to optimize data management and design frameworks, significantly improving the efficiency of oncology research.

### Children's Hospital of Philadelphia

Developed and led an interdisciplinary team of bioinformatic analysts, data scientists, and engineers to deliver strategic informatics solutions and support scientific programs and projects in the pediatric cancer space. Team remit and activities included the following

- **PedcBioPortal:** Headed effort to collaborate with MSKCC, DFCI, and Princess Margaret and build a pediatric focused cBioPortal for use by the pediatric cancer community (<https://pedcbioportal.org/>).
- **Cavatica:** Working with Seven Bridges Genomics to develop a cloud platform for genomic analysis and collaboration (<http://www.cavatica.org/>).
- **Kids First:** Helped to design and create the Kids First genomic application, that houses pediatric cancer and birth-defect genomic and phenotypic data (<https://kidsfirstdrc.org/portal/>).
- **Mechanisms of Compound Sensitivity:** Collaborating with various pharmaceutical companies to determine mechanisms of sensitivity to certain cancer therapeutics.
- **Target Discovery in Pediatric Cancer:** Led target discovery aim in a multi-institution effort (Pediatric Cancer Dream Team / Stand Up to Cancer) dedicated to cancer immunotherapy by building scalable bioinformatics workflows.

### Novartis

Led computational biology initiatives to support early discovery and translational research through the integration of high-dimensional data, development of analysis platforms, and collaborative pipeline building. Focused on accelerating target identification, pathway analysis, and compound profiling across diverse therapeutic areas.

- **DiseasExpress:** Worked with cross-departmental team to develop expression warehouse for Novartis with over 60K samples.
- **GSEA Project:** Developed application in Java (J2EE) to store, manage, and share gene sets. In addition implemented GSEA to use sets in analysis of microarray and other high-throughput data.
- **Compound Set Enrichment:** Implemented set enrichment type approach (Pipeline Pilot) to aid in reducing FP-rate of high throughput screens. Worked with other internal groups on determining best methods for clustering and grouping of compound data for use with this approach.
- **Cancer Cell Line Encyclopedia:** Worked as part of a collaborative team (Broad / NIBR) to develop a pipeline (R) to determine markers (genetic lesion / expression) of sensitivity to compounds across a set of cell lines.
- **Expression Signature Project:** Spearheaded initiative to create gene expression signatures ( R/Bioconductor) to determine pathway activity for use in patient stratification and compound MoA determination.
- **mTORC1 Project:** Worked with Manning lab (HMS) to determine specific set of TSC regulated genes from microarray data and associated processes (Metacore). Analysis used to help elucidate biology around mTOR Complex 1.
- **Early Target Discovery:** Integrated various data types including copy number data, shRNA / siRNA data, expression data, mutation data from both tissue and cell line data and developed analysis file in Spotfire DXP for early target discovery purposes. Data sources included internal and public repositories such as the TCGA, GEO, and ArrayExpress. Metacore and IPA used additionally to determine relevant disease pathway links and connections to known oncogenes or disease markers.
- **Proteomics:** Worked with iTRAQ data across cell lines and compared to mRNA for target / model nomination. Analysis displayed and reported out to interested parties in Spotfire DXP.

- **Education:** Developed program alongside education office and quantitative biology unit to educate wet-bench biologists on analysis of certain common types of data as well as use of Spotfire DXP.

### Ohio State

- **MPDB:** Created web-based relational database application (SQL Server/ASP/ADO) of Membrane Protein structure information. Data derived from PDB (<http://www.mpdb.tcd.ie/>).
- **Crystallization Optimization:** Worked with cross-developmental team to determine optimal conditions for membrane protein crystallization using machine learning.

## EMPLOYMENT HISTORY

SPARK THERAPEUTICS, Philadelphia, PA

*Director of Computational Biology and Machine Learning* April 2021 – Present

GLAXOSMITHKLINE(GSK), Collegeville, PA

*Oncology Data Strategy and Design Director* November 2019 – April 2021

CHILDREN'S HOSPITAL OF PHILADELPHIA (CHOP), Philadelphia, PA

*Bioinformatics Supervisor / Director of Scientific & Analytic Services*, September 2016 – November 2019

*Bioinformatics Scientist III*, February 2013 – September 2016

NOVARTIS (NIBRI), Cambridge, MA

*Scientific Technical Leader I*, 2012 – February 2013

*Scientist II*, 2010 – 2012

*Scientist I*, 2008 – 2010

*Scientific Associate II*, 2005 - 2008

OHIO STATE UNIVERSITY, Columbus, OH

*Chemistry & Biology Teaching Assistant / Lab Associate*, 2002 - 2005

## EDUCATION

DREXEL UNIVERSITY, Philadelphia, PA

*Doctor of Philosophy in Biomedical Engineering, Science & Health Systems*, 2016

OHIO STATE UNIVERSITY, Columbus, OH

*Master of Science in Bioinformatics*, 2005

UNIVERSITY OF MICHIGAN, Ann Arbor, MI

*Bachelor of Science in Cell and Molecular Biology*, 1999

## PUBLICATIONS

1. Nabbi A, Beck P, Delaidelli A, Oldridge DA, Sudhaman S, Zhu K, Yang SYC, Mulder DT, Bruce JP, Paulson JN, **Raman P**, Zhu Y, Resnick AC, Sorensen PH, Sill M, Brabetz S, Lambo S, Malkin D, Johann PD, Kool M, Jones DTW, Pfister SM, Jäger N, Pugh TJ. Transcriptional immunogenomic analysis reveals distinct immunological clusters in paediatric nervous system tumours. *Genome Medicine*, 15(1). doi:10.1186/s13073-023-01219-x (2023). **PMID: 37679810**
2. Shapiro JA, Gaonkar KS, Spielman SJ, Savonen CL, Bethell CJ, Jin R, Rathi KS, Zhu Y, Egolf LE, Farrow BK, Miller DP, Yang Y, Koganti T, Noreen N, Koptyra MP, Duong N, Santi M, Kim J, Robins S, Storm PB, Mack SC, Lilly JV, Xie HM, Jain P, **Raman P**, Rood BR, Lulla RR, Nazarian J, Kraya AA, Vaksman Z, Heath AP, Kline C, Scolaro L, Viaene AN, Huang X, Way GP, Foltz SM, Zhang B, Poetsch AR, Mueller S, Ennis BM, Prados M, Diskin SJ, Zheng S, Guo Y, Kannan S, Waanders AJ, Margol AS, Kim MC, Hanson D, Van Kuren N, Wong J, Kaufman RS, Coleman N, Blackden C, Cole KA, Mason JL, Madsen PJ, Koschmann CJ, Stewart DR, Wafu E, Brown MA, Resnick AC, Greene CS, Rokita JL, Taroni JN; Children's Brain Tumor Network; Pacific Pediatric Neuro-Oncology Consortium. OpenPBT: The Open Pediatric Brain Tumor Atlas. *Cell Genomics*, 3(7):100340. doi: 10.1016/j.xgen.2023.100340. eCollection (2023). **PMID: 37492101**
3. Dang MT, Gonzalez MV, Gaonkar KS, Rathi KS, Young P, Arif S, Zhai L, Alam Z, Devalaraja S, To TKJ, Folkert IW, **Raman P**, Rokita JL, Martinez D, Taroni JN, Shapiro JA, Greene CS, Savonen C, Mafra F, Hakonarson H, Curran T, Haldar M. Macrophages in SHH subgroup medulloblastoma display dynamic heterogeneity that varies with treatment modality. *Cell Reports*, 42(6):112600. doi: 10.1016/j.celrep.2023.112600. Epub (2023). **PMID: 37235472**
4. Maddipati R, Norgard RJ, Baslan T, Rathi KS, Zhang A, Saeid A, Higashihara T, Wu F, Kumar A, Annamalai V, Bhattacharya S, **Raman P**, Adkisson CA, Pitarresi JR, Wengyn MD, Yamazoe T, Li J, Balli D, LaRiviere MJ, Ngo TC, Folkert IW, Millstein ID, Bermeo, J, Carpenter EL, McAuliffe JC, Oktay MH, Brekken RA, Lowe SW, Iacobuzio-Donahue CA, Notta F, Stanger BZ. MYC Levels Regulate Metastatic Heterogeneity in Pancreatic Adenocarcinoma. *Cancer Discovery*, 12(2):542-561. doi: 10.1158/2159-8290.CD-20-1826. Epub (2021). **PMID: 34551968**
5. Tong CCL, Koptyra M, **Raman P**, Rathi KS, Choudhari N, Lin X, Seckar T, Wei Z, Kohanski MA, O'Malley BW, Cohen NA, Kennedy DW, Adappa ND, Robertson ES, Baranov E, Kuan EC, Papagiannopoulos P, Jalaly JB, Feldman MD, Storm PB, Resnick AC, Palmer JN. Targeted gene expression profiling of inverted papilloma and squamous cell carcinoma. *Int Forum Allergy Rhinol*, 12(2), 200-209. doi: 10.1002/alr.22882. Epub (2021). **PMID: 34510780**
6. Dang MT, Gonzalez MV, Gaonkar KS, Rathi KS, Young P, Arif S, Zhai L, Alam Z, Devalaraja S, To TKJ, Folkert IW, **Raman P**, Rokita JL, Martinez D, Taroni JN, Shapiro JA, Greene CS, Savonen C, Mafra F, Hakonarson H, Curran T, Haldar M. Macrophages in SHH subgroup medulloblastoma display dynamic heterogeneity that varies with treatment modality. *Cell Rep*, 34(13), 108917. doi: 10.1016/j.celrep (2021). **PMID: 33789113**

7. Kundra R, Zhang H, Sheridan R, Sirintrapun S, Wang A, Ochoa A, Wilson M, Gross B, Sun Y, Madupuri R, Satravada B, Reales D, Vakiani E, Al-Ahmadie H, Dogan A, Arcila M, Zehir A, Maron S, Berger M, Viaplana C, Janeway K, Ducar M, Sholl L, Dogan S, Bedard P, Surrey L, Sanchez I, Syed A, Rema A, Chakravarty D, Suehnholz S, Nissan M, Iyer G, Murali R, Bouvier N, Soslow R, Hyman D, Younes A, Intlekofer A, Harding J, Carvajal R, Sabbatini P, Abou-Alfa G, Morris L, Janjigian Y, Gallagher M, Soumerai T, Mellinghoff I, Hakimi A, Fury M, Huse J, Bagrodia A, Hameed M, Thomas S, Gardos S, Cerami E, Mazor T, Kumari P, **Raman P**, Shivdasani P, MacFarland S, Newman S, Waanders A, Gao J, Solit DSchultz N. OncoTree: A Cancer Classification System for Precision Oncology. *JCO Clinical Cancer Informatics* 221-230 doi:10.1200/cci.20.0010 (2021). **PMID: 33625877**
8. Petralia F, Tignor N, Reva B, Koptyra M, Chowdhury S, Rykunov D, Krek A, Ma W, Zhu Y, Ji J, Calinawan A, Whiteaker J, Colaprico A, Stathias V, Omelchenko T, Song X, **Raman P**, Guo Y, Brown M, Ivey R, Szpyt J, Guha Thakurta S, Gritsenko M, Weitz K, Lopez G, Kalayci S, Gümüş Z, Yoo S, da Veiga Leprevost F, Chang H, Krug K, Katsnelson L, Wang Y, Kennedy J, Voytovich U, Zhao L, Gaonkar K, Ennis B, Zhang B, Baubet V, Tauhid L, Lilly J, Mason J, Farrow B, Young N, Leary S, Moon J, Petyuk V, Nazarian J, Adappa N, Palmer J, Lober R, Rivero-Hinojosa S, Wang L, Wang J, Broberg M, Chu R, Moore R, Monroe M, Zhao R, Smith R, Zhu J, Robles A, Mesri M, Boja E, Hiltke T, Rodriguez H, Zhang B, Schadt E, Mani D, Ding L, Iavarone A, Wiznerowicz M, Schürer S, Chen X, Heath A, Rokita J, Nesvizhskii A, Fenyö D, Rodland K, Liu T, Gygi S, Paulovich A, Resnick A, Storm P, Rood B, Wang P, Francis A, Morgan A, Waanders A, Viaene A, Buccoliero A, Chinnaiyan A, Leonard C, Kline C, Caporalini C, Kinsinger C, Li C, Kram D, Hanson D, Appert E, Kawaler E, Raabe E, Jackson E, Greenfield J, Stone G, Getz G, Grant G, Teo G, Pollack I, Cain J, Foster J, Phillips J, Palma J, Ketchum K, Ruggles K, Blumenberg L, Cornwell M, Sarmady M, Domagalski M, Cieřlik M, Santi M, Li M, Ellis M, Wyczalkowski M, Connors M, Scagnet M, Gupta N, Edwards N, Vitanza N, Vaske O, Becher O, McGarvey P, Firestein R, Mueller S, Winebrake S, Dhanasekaran S, Cai S, Partap S, Patton T, Le T, Lorentzen T, Liu WBocik W. Integrated Proteogenomic Characterization across Major Histological Types of Pediatric Brain Cancer. *Cell* 183: 1962-1985.e31 doi:10.1016/j.cell.2020.10.044 (2020). **PMID: 33242424**
9. Gaonkar K, Marini F, Rath K, Jain P, Zhu Y, Chemicles N, Brown M, Naqvi A, Zhang B, Storm P, Maris J, **Raman P**, Resnick A, Strauch K, Taroni JRokita J. annoFuse: an R Package to annotate, prioritize, and interactively explore putative oncogenic RNA fusions. *BMC Bioinformatics* 21: doi:10.1186/s12859-020-03922-7 (2020). **PMID: 33317447**
10. Rath K, Arif S, Koptyra M, Naqvi A, Taylor D, Storm P, Resnick A, Rokita J, **Raman P** (2020) A transcriptome-based classifier to determine molecular subtypes in medulloblastoma. *PLOS Computational Biology* 16: e1008263 doi:10.1371/journal.pcbi.1008263 (2020). **PMID: 33119584**
11. Tetri L, Kolla V, Golden R, Iyer R, Croucher J, Choi J, Macfarland S, Naraparaju K, Guan P, Nguyen F, Gaonkar K, **Raman P**, Brodeur G. RET receptor expression and interaction with TRK receptors in neuroblastomas. *Oncology Reports* doi:10.3892/or.2020.7583 (2020). **PMID: 32319659**
12. Rentas S, Rath K, Kaur M, **Raman P**, Krantz I, Sarmady MTayoun A. Diagnosing Cornelia de Lange syndrome and related neurodevelopmental disorders using RNA sequencing. *Genetics in Medicine* 22: 927-936 doi:10.1038/s41436-019-0741-5 (2020). **PMID: 31911672**
13. Martin C, Datta A, Littlefield C, Kalra A, Chapron C, Wawersik S, Dagbay K, Brueckner C, Nikiforov A, Danehy F, Streich F, Boston C, Simpson A, Jackson J, Lin S, Danek N, Faucette R, **Raman P**, Capili A, Buckler A, Carven G, Schürpf T. Selective inhibition of TGFβ1 activation overcomes primary resistance to checkpoint blockade therapy by altering tumor immune landscape. *Science Translational Medicine* 12: eaay8456 doi:10.1126/scitranslmed.aay8456 (2020). **PMID: 32213632**

14. Sussman R, Rokita J, Huang K, **Raman P**, Rath K, Martinez D, Bosse K, Lane M, Hart L, Bhatti T, Pawel B, Maris J. CAMKV Is a Candidate Immunotherapeutic Target in MYCN Amplified Neuroblastoma. *Frontiers in Oncology* 10: doi:10.3389/fonc.2020.00302 (2020). **PMID: 32211329**
15. Yarmarkovich M, Farrel A, Sison A, di Marco M, **Raman P**, Parris J, Monos D, Lee H, Stevanovic S, Maris J. Immunogenicity and Immune Silence in Human Cancer. *Frontiers in Immunology* 11: doi:10.3389/fimmu.2020.00069 (2019). **PMID: 32256484**
16. Ijaz H, Koptyra M, Gaonkar K, Rokita J, Baubet V, Tauhid L, Zhu Y, Brown M, Lopez G, Zhang B, Diskin S, Vaksman Z, Mason J, Appert E, Lilly J, Lulla R, De Raedt T, Heath A, Felmeister A, **Raman P**, Nazarian J, Santi M, Storm P, Resnick A, Waanders A, Cole K. Pediatric high-grade glioma resources from the Children's Brain Tumor Tissue Consortium. *Neuro-Oncology* 22: 163-165 doi:10.1093/neuonc/noz192 (2019). **PMID: 32256484**
17. MacFarland S, Zelley K, Surrey L, Gallo D, Luo M, **Raman P**, Wertheim G, Hunger S, Li M, Brodeur G. Pediatric Somatic Tumor Sequencing Identifies Underlying Cancer Predisposition. *JCO Precision Oncology* 1-26 doi:10.1200/po.19.00062 (2019). **PMID: 32783018**
18. Rokita J, Rath K, Cardenas M, Upton K, Jayaseelan J, Cross K, Pfeil J, Egolf L, Way G, Farrel A, Kendersky N, Patel K, Gaonkar K, Modi A, Berko E, Lopez G, Vaksman Z, Mayoh C, Nance J, McCoy K, Haber M, Evans K, McCalmont H, Bendak K, Böhm J, Marshall G, Tyrrell V, Kalletta K, Braun F, Qi L, Du Y, Zhang H, Lindsay H, Zhao S, Shu J, Baxter P, Morton C, Kurmashev D, Zheng S, Chen Y, Bowen J, Bryan A, Leraas K, Coppens S, Doddapaneni H, Momin Z, Zhang W, Sacks G, Hart L, Krytska K, Mosse Y, Gatto G, Sanchez Y, Greene C, Diskin S, Vaske O, Haussler D, Gastier-Foster J, Kolb E, Gorlick R, Li X, Reynolds C, Kurmasheva R, Houghton P, Smith M, Lock R, **Raman P**, Wheeler D, Maris J. Genomic Profiling of Childhood Tumor Patient-Derived Xenograft Models to Enable Rational Clinical Trial Design. *Cell Reports* 29: 1675-1689.e9 doi:10.1016/j.celrep.2019.09.071 (2019). **PMID: 31693904**
19. Surrey L, MacFarland S, Chang F, Cao K, Rath K, Akgumus G, Gallo D, Lin F, Gleason A, **Raman P**, Aplenc R, Bagatell R, Minturn J, Mosse Y, Santi M, Tasian S, Waanders A, Sarmady M, Maris J, Hunger S, Li M. Clinical utility of custom-designed NGS panel testing in pediatric tumors. *Genome Med.* 2019;11(1). doi:10.1186/s13073-019-0644-8 (2019). **PMID: 31133068**
20. **Raman P**, Zimmerman S, Rath K, de Torrenté L, Sarmady M, Wu C, Leipzig J, Taylor D, Tozeren A, Mar J. A comparison of survival analysis methods for cancer gene expression RNA-Sequencing data. *Cancer Genet.* 2019;235-236:1-12. doi:10.1016/j.cancergen.2019.04.004 (2019). **Science Direct: S2210776218304897**
21. Makvandi M, Lee H, Puentes L, Reilly S, Rath K, Weng C, Chan H, Hou C, **Raman P**, Martinez D, Xu K, Carlin S, Greenberg R, Pawel B, Mach R, Maris J, Pryma D. Targeting PARP-1 with alpha-particles is potentially cytotoxic to human neuroblastoma in pre-clinical models. *Mol Cancer Ther.* 2019;molcanther.0837.2018. doi:10.1158/1535-7163.mct-18-0837 (2019). **PMID: 31072830**
22. Taylor D, Aronow B, Tan K, Bernt K, Salomonis N, Greene C, Frolova A, Henrickson S, Wells A, Pei L, Jaiswal J, Whitsett J, Hamilton K, MacFarland S, Kelsen J, Heuckeroth R, Potter S, Vella L, Terry N, Ghanem L, Kennedy B, Helbig I, Sullivan K, Castelo-Soccio L, Kreigstein A, Herse F, Nawijn M, Koppelman G, Haendel M, Harris N, Rokita J, Zhang Y, Regev A, Rozenblatt-Rosen O, Rood J, Tickle T, Vento-Tormo R, Alimohamed S, Lek M, Mar J, Loomes K, Barrett D, Uapinyoying P, Beggs A, Agrawal P, Chen Y, Muir A, Garmire L, Snapper S, Nazarian J, Seeholzer S, Fazelinia H, Singh L, Faryabi R, **Raman P**, Dawany N, Xie H, Devkota B, Diskin S, Anderson S, Rappaport E, Peranteau W, Wikenheiser-Brokamp K, Teichmann S, Wallace D, Peng T, Ding Y, Kim M, Xing Y, Kong S, Bönnemann C, Mandl K, White P. The Pediatric Cell Atlas: Defining the Growth Phase of Human Development at Single-Cell Resolution. *Dev Cell*, 49(1):10-29. doi:10.1016/j.devcel.2019.03.001 (2019). **PMID: 30930166**



23. Sano R, Krytska K, Larmour C, **Raman P**, Martinez D, Ligon G, Lillquist J, Cucchi U, Orsini P, Rizzi S, Pawel B, Alvarado D, Mossé Y. An antibody-drug conjugate directed to the ALK receptor demonstrates efficacy in preclinical models of neuroblastoma. *Sci Transl Med*, 11(483):eaau9732. doi:10.1126/scitranslmed.aau9732 (2019). **PMID: 30867324**
24. **Raman P**, Maddipati R, Lim K, Tozeren A. Pancreatic cancer survival analysis defines a signature that predicts outcome. *PLOS ONE*, 13(8):e0201751 (2018). **PMID: 30092011**
25. Mackay A, Burford A, Molinari V, Jones D, Izquierdo E, Brouwer-Visser J, Giangaspero F, Haberler C, Pietsch T, Jacques T, Figarella-Branger D, Rodriguez D, Morgan P, **Raman P**, Waanders A, Resnick A, Massimino M, Garrè M, Smith H, Capper D, Pfister S, Würdinger T, Tam R, Garcia J, Thakur M, Vassal G, Grill J, Jaspan T, Varlet P, Jones C. Molecular, Pathological, Radiological, and Immune Profiling of Non-brainstem Pediatric High-Grade Glioma from the HERBY Phase II Randomized Trial. *Cancer Cell*, 33(5):829-842.e5 (2018). **PMID: 29763623**
26. Gröbner S, Worst B, Weischenfeldt J, Buchhalter I, Kleinheinz K, Rudneva V, Johann P, Balasubramanian G, Segura-Wang M, Brabetz S, Bender S, Hutter B, Sturm D, Pfaff E, Hübschmann D, Zipprich G, Heinold M, Eils J, Lawerenz C, Erkek S, Lambo S, Waszak S, Blattmann C, Borkhardt A, Kuhlen M, Eggert A, Fulda S, Gessler M, Wegert J, Kappler R, Baumhoer D, Burdach S, Kirschner-Schwabe R, Kontny U, Kulozik A, Lohmann D, Hettmer S, Eckert C, Bielack S, Nathrath M, Niemeyer C, Richter G, Schulte J, Siebert R, Westermann F, Molenaar J, Vassal G, Witt H, Lichter P, Weber U, Eils R, Korshunov A, Witt O, Pfister S, Reifenberger G, Felsberg J, von Kalle C, Schmidt M, Bartholomä C, Taylor M, Pfister S, Jones D, Lichter P, Jäger N, Buchhalter I, Korbel J, Stütz A, Rausch T, Radlwimmer B, Yaspo M, Lehrach H, Warnatz H, Landgraf P, Borkhardt A, Brors B, Zapatka M, Eils R, Eils R, Eils J, Lawerenz C, Siebert R, Wagner S, Haake A, Richter J, Richter G, Eils R, Lawerenz C, Eils J, Kerssemakers J, Jaeger-Schmidt C, Scholz I, Bergmann A, Borst C, Burkhardt B, Claviez A, Dreyling M, Eberth S, Einsele H, Frickhofen N, Haas S, Hansmann M, Karsch D, Kneba M, Lisfeld J, Mantovani-Löffler L, Rohde M, Ott G, Stadler C, Staib P, Stilgenbauer S, Trümper L, Zenz T, Hansmann M, Kube D, Küppers R, Weniger M, Hummel M, Klapper W, Kostezka U, Lenze D, Möller P, Rosenwald A, Ott G, Szczepanowski M, Ammerpohl O, Aukema S, Binder V, Borkhardt A, Haake A, Hoell J, Leich E, Lichter P, López C, Nagel I, Pischmariov J, Radlwimmer B, Richter J, Rosenstiel P, Rosenwald A, Schilhabel M, Schreiber S, Vater I, Wagener R, Siebert R, Bernhart S, Binder H, Brors B, Doose G, Eils R, Hoffmann S, Hopp L, Hübschmann D, Kleinheinz K, Kretzmer H, Kreuz M, Korbel J, Langenberger D, Loeffler M, Rosolowski M, Schlesner M, Stadler P, Sungalee S, Burkhardt B, Kratz C, Witt O, van Tilburg C, Kramm C, Fleischhack G, Dirksen U, Rutkowski S, Frühwald M, von Hoff K, Wolf S, Klingebiel T, Koscielniak E, Landgraf P, Koster J, Resnick A, Zhang J, Liu Y, Zhou X, Waanders A, Zwiijnenburg D, **Raman P**, Brors B, Weber U, Northcott P, Pajtler K, Kool M, Piro R, Korbel J, Schlesner M, Eils R, Jones D, Lichter P, Chavez L, Zapatka M, Pfister S. The landscape of genomic alterations across childhood cancers. *Nature*, 555(7696):321-327 (2018). **PMID: 29489754**
27. Guha M, Srinivasan S, **Raman P**, Jiang Y, Kaufman B, Taylor D, Dong D, Chakrabarti R, Picard M, Carstens R, Kijima Y, Feldman M, Avadhani N. Aggressive triple negative breast cancers have unique molecular signature on the basis of mitochondrial genetic and functional defects. *Biochimica et Biophysica Acta (BBA) - Molecular Basis of Disease*, 1864(4):1060-1071 (2018). **PMID: 29309924**
28. Jain P, Silva A, Han H, Lang S, Zhu Y, Boucher K, Smith T, Vakil A, Diviney P, Choudhary N, **Raman P**, Busch C, Delaney T, Yang X, Olow A, Mueller S, Haas-Kogan D, Fox E, Storm P, Resnick A, Waanders A. Overcoming resistance to single-agent therapy for oncogenic BRAF gene fusions via combinatorial targeting of MAPK and PI3K/mTOR signaling pathways. *Oncotarget*, 8(49) (2017). **PMID: 29156677**

29. Campbell B, Light N, Fabrizio D, Zatzman M, Fuligni F, de Borja R, Davidson S, Edwards M, Elvin J, Hodel K, Zahurancik W, Suo Z, Lipman T, Wimmer K, Kratz C, Bowers D, Laetsch T, Dunn G, Johanns T, Grimmer M, Smirnov I, Larouche V, Samuel D, Bronsema A, Osborn M, Stearns D, **Raman P**, Cole K, Storm P, Yalon M, Opocher E, Mason G, Thomas G, Sabel M, George B, Ziegler D, Lindhorst S, Issai V, Constantini S, Toledano H, Elhasid R, Farah R, Dvir R, Dirks P, Huang A, Galati M, Chung J, Ramaswamy V, Irwin M, Aronson M, Durno C, Taylor M, Rechavi G, Maris J, Bouffet E, Hawkins C, Costello J, Meyn M, Pursell Z, Malkin D, Tabori U, Shlien A. Comprehensive Analysis of Hypermutation in Human Cancer. *Cell*, 171(5):1042-1056.e10 (2017). [PMID: 29056344](#)
30. Mackay A, Burford A, Carvalho D, Izquierdo E, Fazal-Salam J, Taylor K, Bjerke L, Clarke M, Vinci M, Nandhabalan M, Temelso S, Popov S, Molinari V, **Raman P**, Waanders A, Han H, Gupta S, Marshall L, Zacharoulis S, Vaidya S, Mandeville H, Bridges L, Martin A, Al-Sarraj S, Chandler C, Ng H, Li X, Mu K, Trabelsi S, Brahim D, Kisljakov A, Konovalov D, Moore A, Carcaboso A, Sunol M, de Torres C, Cruz O, Mora J, Shats L, Stavale J, Bidinotto L, Reis R, Entz-Werle N, Farrell M, Cryan J, Crimmins D, Caird J, Pears J, Monje M, Debily M, Castel D, Grill J, Hawkins C, Nikbakht H, Jabado N, Baker S, Pfister S, Jones D, Fouladi M, von Bueren A, Baudis M, Resnick A, Jones C. Integrated Molecular Meta-Analysis of 1,000 Pediatric High-Grade and Diffuse Intrinsic Pontine Glioma. *Cancer Cell*, 32(4):520-537.e5 (2017). [PMID: 28966033](#)
31. Bosse K, **Raman P**, Zhu Z, Lane M, Martinez D, Heitzeneder S, Rath K, Kendsersky N, Randall M, Donovan L, Morrissey S, Sussman R, Zhelev D, Feng Y, Wang Y, Hwang J, Lopez G, Harenza J, Wei J, Pawel B, Bhatti T, Santi M, Ganguly A, Khan J, Marra M, Taylor M, Dimitrov, D, Mackall C. and Maris, J. "Identification of GPC2 as an Oncoprotein and Candidate Immunotherapeutic Target in High-Risk Neuroblastoma". *Cancer Cell*, 32(3), pp.295-309.e12 (2017). [PMID: 28898695](#)
32. Capasso M, McDaniel L, Cimmino F, Cirino A, Formicola D, Russell M, **Raman P**, Cole K, Diskin, S. "The functional variant rs34330 of CDKN1B is associated with risk of Neuroblastoma". *Journal of Cellular and Molecular Medicine* (2017). [PMID: 28667701](#)
33. Kim E, Cheng Y, Bolton-Gillespie E, Cai X, Ma C, Tarangelo A, Le L, Jambhekar M, **Raman P**, Hayer K, Wertheim G, Speck N, Tong W, Viatour, P. "Rb family proteins enforce the homeostasis of quiescent hematopoietic stem cells by repressing Sox3 expression". *The Journal of Experimental Medicine*, p.jem.20160719 (2017). [PMID: 28550162](#)
34. Lurier E, Dalton D, Dampier W, **Raman P**, Nassiri S, Ferraro N, Rajagopalan R, Sarmady M, Spiller K. "Transcriptome analysis of IL-10-stimulated (M2c) macrophages by next-generation sequencing". *Immunobiology*. (2017). [PMID: 28318799](#)
35. Padovan-Merhar O, **Raman P** (co-first author), Ostrovskaya I, Kalletta K, Rubnitz K, Sanford E, Ali S, Miller V, Mossé Y, Granger M, Weiss B, Maris J, Modak S. "Enrichment of Targetable Mutations in the Relapsed Neuroblastoma Genome." *PLOS Genetics*, 12(12), p.e1006501 (2016). [PMID: 27997549](#)
36. Hart L, Rader J, **Raman P**, Batra V, Russell M, Tsang M, Gagliardi M, Chen L, Martinez D, Li Y, Wood A, Kim S, Parasuraman S, Delach S, Cole K, Krupa S, Boehm M, Peters M, Caponigro G, Maris J "Preclinical therapeutic synergy of MEK1/2 and CDK4/6 inhibition in Neuroblastoma". *Clinical Cancer Research*, doi:10.1158/1078-0432.ccr-16-1131 (2016). [PMID: 27729458](#)
37. Sotillo E, Barrett D, Bagashev A, Black K, Lanauze C, Oldridge D, Sussman R, Harrington C, Chung E, Hofmann T, Maude S, Martinez N, **Raman P**, Ruella M, Allman D, Jacoby E, Fry T, Barash Y, Lynch K, Mackall C, Maris J, Grupp S, Thomas-Tikhonenko A. "Convergence of acquired mutations and alternative splicing of CD19 enables resistance to CART-19 immunotherapy" *Cancer Discovery*, 5(12):1282-1295 (2015). [PMID: 26516065](#)



38. Tarangelo A, Lo N, Teng R, Kim E, Linh L, Watson D, Furth EE, **Raman P**, Ehmer U, Viatour P. "Recruitment of Pontin/Reptin by E2f1 amplifies E2f transcriptional response during cancer progression." *Nature Communications*, 6:10028 (2015). [PMID: 26639898](#)
39. Schnepf RW, Khurana P, Attiyeh EF, **Raman P**, Chodosh SE, Oldridge DA, Gagliardi ME, Conkrite KL, Asgharzadeh S, Seeger RC, Madison BB, Rustgi AK, Maris JM, Diskin SJ. "A LIN28B-RAN-AURKA Signaling Network Promotes Neuroblastoma Tumorigenesis." *Cancer Cell*, S1535-6108(15)00343-8 (2015). [PMID: 26481147](#)
40. **Raman P**, Purwin T, Pestell R, Tozeren A. "FXD5 is a Marker for Poor Prognosis and a Potential Driver for Metastasis in Ovarian Carcinomas." *Cancer Informatics*, p.113 (2015). [PMID: 26494976](#)
41. Krytska K, Ryles H, Sano R, **Raman P**, Infarinato N, Hansel T, Makena M, Song M, Reynolds C, Mosse Y. "Crizotinib Synergizes with Chemotherapy in Preclinical Models of Neuroblastoma." *Clinical Cancer Research* (2015). [PMID: 26438783](#)
42. Russell M, Penikis A, Oldridge D, Alvarez-Dominguez J, McDaniel L, Diamond M, Padovan O, **Raman P**, Li Y, Wei J, Zhang S, Gnanchandran J, Seeger R, Asgharzadeh S, Khan J, Diskin S, Maris JM, Cole K. "CASC15-S Is a Tumor Suppressor lncRNA at the 6p22 Neuroblastoma Susceptibility Locus." *Cancer Research*, 75(15), pp.3155-3166 (2015). [PMID: 26100672](#)
43. Carson C, **Raman P**, Tullai J, Xu L, Henault M, Thomas E, Yeola S, Lao J, McPate M, Verkuyl J, Marsh G, Sarber J, Amaral A, Bailey S, Lubicka D, Pham H, Miranda N, Ding J, Tang H, Ju H, Tranter P, Ji N, Krastel P, Jain R, Schumacher A, Loureiro J, George E, Berellini G, Ross N, Bushell S, Erdemli G, Solomon, J. "Englerin A Agonizes the TRPC4/C5 Cation Channels to Inhibit Tumor Cell Line Proliferation." *PLOS ONE*, 10(6), p.e0127498 (2015). [PMID: 26098886](#)
44. Otsuru S, Hofmann T, **Raman P**, Olson T, Guess A, Dominici M, Horwitz E. "Genomic and functional comparison of mesenchymal stromal cells prepared using two isolation methods." *Cytotherapy*, 17(3), pp.262-270 (2015). [PMID: 25659640](#)
45. Dews, M, Tan, G, Hultine, S, **Raman, P**, Choi, J, Duperret, E, Lawler, J, Bass, A. and Thomas-Tikhonenko, A. "Masking Epistasis Between MYC and TGF-beta Pathways in Antiangiogenesis-Mediated Colon Cancer Suppression." *Journal of the National Cancer Institute*, 043 (2014). [PMID: 24627270](#)
46. Psathas JN, Doonan PJ, **Raman P**, Freedman BD, Minn AJ, Thomas-Tikhonenko A. "The Myc-miR-17-92 axis amplifies B-cell receptor signaling via inhibition of ITIM proteins: a novel lymphomagenic feed-forward loop." *Blood*, 122 (26):4220-229 (2013). [PMID: 24169826](#)
47. Britschgi A, Bill A, Brinkhaus H, Rothwell C, Clay I, Duss S, Rebhan M, **Raman P**, Guy CT, Wetzel K, George E, Popa MO, Lilley S, Choudhury H, Gosling M, Wang L, Fitzgerald S, Borawski J, Baffoe J, Labow M, Gaither LA, Bentires-Alj M. "Calcium-activated chloride channel ANO1 promotes breast cancer progression by activating EGFR and CAMK signaling." *Proc Natl Acad Sci*, 110(11):E1026-34 (2013). [PMID: 23431153](#)

48. Barretina J, Caponigro G, Stransky N, Venkatesan K, Margolin AA, Kim S, Wilson CJ, Lehár J, Kryukov GV, Sonkin D, Reddy A, Liu M, Murray L, Berger MF, Monahan JE, Morais P, Meltzer J, Korejwa A, Jané-Valbuena J, Mapa FA, Thibault J, Bric-Furlong E, **Raman P**, Shipway A, Engels IH, Cheng J, Yu GK, Yu J, Aspesi P Jr, de Silva M, Jagtap K, Jones MD, Wang L, Hatton C, Palessandolo E, Gupta S, Mahan S, Sougnez C, Onofrio RC, Liefeld T, MacConaill L, Winckler W, Reich M, Li N, Mesirov JP, Gabriel SB, Getz G, Ardlie K, Chan V, Myer VE, Weber BL, Porter J, Warmuth M, Finan P, Harris JL, Meyerson M, Golub TR, Morrissey MP, Sellers WR, Schlegel R, Garraway LA. "The Cancer Cell Line Encyclopedia enables predictive modelling of anticancer drug sensitivity." *Nature*, 483(7391):603-7 (2012). **PMID: 22460905**
  
49. Varin T, Gubler H, Parker CN, Zhang JH, **Raman P**, Ertl P, Schuffenhauer A. "Compound set enrichment: a novel approach to analysis of primary HTS data." *J Chem Inf Model*, 50(12):2067-78 (2010). **PMID: 21073183**
  
50. Düvel K, Yecies JL, Menon S, **Raman P (co-second author)**, Lipovsky AI, Souza AL, Triantafellow E, Ma Q, Gorski R, Cleaver S, Vander Heiden MG, MacKeigan JP, Finan PM, Clish CB, Murphy LO, Manning BD. "Activation of a metabolic gene regulatory network downstream of mTOR complex 1." *Mol Cell*, 39(2):171-83 (2010). **PMID: 20670887**
  
51. Asur S, **Raman P**, Otey ME, Parthasarathy S. "A model-based approach for mining membrane protein crystallization trials." *Bioinformatics*, 22(14):e40-8 (2006) **PMID: 16873499**
  
52. **Raman P**, Cherezov V, Caffrey M. "The Membrane Protein Data Bank." *Cell Mol Life Sci*, 63(1):36-51 (2006). **PMID: 16314922**