

# Deborah Plana, MD, PhD

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## EDUCATION

<b>Massachusetts Institute of Technology • Cambridge, MA</b> Bachelor of Science in Biological Engineering Minor in Statistics and Data Science	<i>Jun. 2013-Jun. 2017</i> GPA 4.9/5.0
<b>Harvard Medical School/MIT MD-PhD and HST Programs • Boston, MA</b> Harvard PhD in Systems Biology, with the dissertation: <a href="#">“Clinical Trial Data Science to Advance Precision Oncology”</a>	<i>Jun. 2017-May 2024</i>

## MEDICAL RESIDENCY TRAINING

<b>Massachusetts General Hospital, PRIME Track Anesthesia/Research Residency • Boston, MA</b>	<i>Jun. 2024-current</i>
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## AWARDS

<b>Exceptional Research Opportunities Program Grant • HHMI</b>	<i>Jan. 2015</i>
<b>Ilona Karmel Writing Prize • MIT</b>	<i>May 2015</i>
<b>Industrial Advisory Council for Minority Education Student Prize • MIT</b>	<i>Dec. 2015</i>
<b>James E. Cunningham (1957) Memorial Scholar • MIT</b>	<i>Dec. 2015</i>
<b>Tau Beta Pi Engineering Honor Society • MIT</b>	<i>Sep. 2016</i>
<b>Reddy Family Undergraduate Research Opportunities Fund • MIT</b>	<i>Dec. 2016</i>
<b>Medical Scientist Training Program • NIH</b>	<i>Jun. 2017-May 2024</i>
<b>Presidential Scholar • HMS</b>	<i>Aug. 2017, Aug. 2018</i>
<b>Quantitative Sciences in Drug Development Best Poster • Novartis</b>	<i>Aug. 2018</i>
<b>Harvard Graduate Prize Fellowship • HMS</b>	<i>Mar. 2019</i>
<b>Ruth L. Kirschstein National Research Service Award, F30CA260780 • NIH</b>	<i>Jun. 2021-May 2024</i>
<b>Harvard Medical School Magna Cum Laude</b>	<i>May 2024</i>

## RESEARCH EXPERIENCE

<b>Lauffenburger Laboratory • MIT Department of Biological Engineering • Cambridge, MA</b> <b>Undergraduate Research Opportunities Program (UROP) and MGH Summer Research Trainee Program (SRTP)</b> <ul style="list-style-type: none"><li>• Constructed and collected cytokine data from a triculture hydrogel model of endometriosis.</li><li>• Used a mixed-effects model of cytokine data to investigate the role of different cell types in endometriosis.</li><li>• Developed blood-based CLIA assays for prognosticating patient resistance to targeted therapies.</li><li>• Analyzed RNA-Seq and microarray data from melanoma patient tumor tissue and exosome samples to predict patients' response to immune-checkpoint inhibitors.</li></ul>	<i>Jan. 2015-Jun. 2017</i>
<b>Sorger and Palmer Laboratories • HMS Laboratory of Systems Pharmacology • Boston, MA</b> <b>HMS/MIT MD-PhD Program</b> <ul style="list-style-type: none"><li>• Invented a statistical tool to identify treatment-sensitive tumor subgroups in early-phase clinical trials of new therapies.</li><li>• Discovered that a parametric distribution (Weibull) describes patient survival data and can estimate drug efficacy with smaller sample sizes as compared to traditional approaches.</li><li>• Established a published repository of individual participant survival data from over 150 clinical trials: <a href="#">cancertrials.io</a>.</li><li>• Identified biomarkers of drug response in ovarian cancer and lymphoma using patient-derived xenograft (PDX) data.</li></ul>	<i>Jan. 2018-Mar. 2022</i>

## LEADERSHIP AND WORK EXPERIENCE

<b>Editor-In-Chief • Rune Literary Magazine • MIT</b> <ul style="list-style-type: none"><li>• Organized membership of over 30 students and led magazine editing, printing, publicity, funding, and distribution.</li></ul>	<i>May 2015-May 2016</i>
<b>President • Latino Cultural Center (LCC) • MIT</b> <ul style="list-style-type: none"><li>• Official representative of about 150 students to the MIT administration and outside organizations.</li></ul>	<i>May 2016-May 2017</i>

**Co-Director ▪ Crimson Care Collaborative ▪ HMS***Mar. 2018-Mar. 2019*

- Directed quality improvement efforts across seven primary care sites in the Greater Boston Area.
- Implemented projects to register patients to vote and reduce clinic no-show rates.
- Managed about 300 volunteers consisting of medical, dental, and undergraduate students.

**Founding Member ▪ HST MD Student Diversity Ambassadors Group ▪ HMS***Mar. 2018-Dec. 2020*

- Collaborated with diversity initiatives at HMS and MIT for prospective student outreach and recruitment.

**Member ▪ Medical School Admissions Committee for Harvard-MIT HST ▪ HMS***Jul. 2019-Mar. 2021*

- Reviewed applications, conducted interviews, contributed to discussions at subcommittee meetings, and submitted interview reports for medical school applicants.

**Co-Founder, Coordinator ▪ Greater Boston Pandemic Fabrication Team ▪ Harvard-MIT***Mar. 2020-Jan. 2022*

- Coordinated team of ~100 scientists, clinicians, and engineers in responding to medical supply shortages during the COVID-19 pandemic, with resulting products used in Boston-area hospitals.
- Guided preparation and publication of multiple open-source research articles on the creation, reuse, and clinical testing of personal protective equipment during a crisis, available at [panfab.org](https://panfab.org).

**Research Fellow ▪ Longitude Capital ▪ Boston, MA***Aug. 2020-Feb. 2021*

- Sourced and evaluated early-stage companies for biotechnology investment team.
- Investigated therapeutic areas of interest and created presentation materials to summarize research findings.

**Technology Venture Fellow ▪ Engine Ventures ▪ Cambridge, MA***Jan. 2024-May 2024*

- Developed landscape of scientific research and company activity addressing unmet needs in fertility.
- Performed due diligence to assist in evaluating early-stage companies in human health.

**TEACHING****Undergraduate Teaching Assistant ▪ Fields, Forces and Flows (2.793/6.023/20.330) ▪ MIT***Jan. 2017-May 2017*

- Taught weekly recitations and office hours, organized review sessions, graded exams, and moderated Piazza forum.
- Course topics taught included electric fields, fluid flows, transport phenomena and applications to biological systems.
- Received 7.0/7.0 instructor rating.

**Graduate Teaching Assistant ▪ Principles and Practices of Drug Development ▪ Harvard-MIT***Aug. 2020-Dec. 2020*

- Created and presented course materials on pharmacology fundamentals, preclinical drug discovery, clinical trials, drug manufacturing, FDA regulation, and financing of new therapeutics for undergraduate and graduate students.

**TECHNICAL AND LANGUAGE SKILLS**

**Data analysis:** Mathematica, MATLAB, Python, R.

**Languages:** Native/Bilingual proficiency in English and Spanish. Certified to provide clinical care in Spanish by ALTA language services.

**PROFESSIONAL ACTIVITIES**

**Ad hoc referee:** BMJ Open, Frontiers in Medicine

**Member:** American Society of Anesthesiologists; Early-Stage Anesthesiology Scholars; Harvard Center for Cancer Systems Pharmacology Executive Committee; HMS Medical Student COVID-19 Curriculum Committee; Society for Obstetric Anesthesia and Perinatology

**Poster judge:** 22<sup>nd</sup> Annual New England Science Symposium, HMS

**Research supervisor:** Ivonne Zhou (undergraduate, UNC Chapel Hill), David Huang (undergraduate, Harvard College), William Sorger (undergraduate, Brandeis University), and Harris Davis (undergraduate, UNC Chapel Hill)

**PEER-REVIEWED PUBLICATIONS**

\*Denotes equal contributions

1. Schrier, S. B., Hill, A. S., **Plana, D.**, & Lauffenburger, D. A. (2016). *Synergistic Communication between CD4+ T Cells and Monocytes Impacts the Cytokine Environment*. Scientific Reports, 6(1), 34942.

2. Koch, R., Christie, A. L., Crombie, J. L., Palmer, A. C., **Plana, D.**, Shigemori, K., Morrow, S. N., Van Scoyk, A., Wu, W., Brem, E. A., Secrist, J. P., Drew, L., Schuller, A. G., Cidado, J., Letai, A., & Weinstock, D. M. (2019). *Biomarker-driven strategy for MCL1 inhibition in T-cell lymphomas*. *Blood*, 133(6), 566–575.
3. Shi, A., Kasumova, G. G., Michaud, W. A., Cintolo-Gonzalez, J., Díaz-Martínez, M., Ohmura, J., Mehta, A., Chien, I., Frederick, D. T., Cohen, S., **Plana, D.**, Johnson, D., Flaherty, K. T., Sullivan, R. J., Kellis, M., & Boland, G. M. (2020). *Plasma-derived extracellular vesicle analysis and deconvolution enable prediction and tracking of melanoma checkpoint blockade outcome*. *Science Advances*, 6(46), eabb3461.
4. Tyán, K., Levin, A., Avalos-Pacheco, A., **Plana, D.**, Rand, E. A., Yang, H., Maliszewski, L. E., Chylek, L. A., Atta, L., Tye, M. A., Carmack, M. M., Oglesby, N. S., Burgin, S., Yu, S. H., LeBoeuf, N. R., & Kemp, J. M. (2020). *Considerations for the Selection and Use of Disinfectants Against SARS-CoV-2 in a Health Care Setting*. *Open Forum Infectious Diseases*, 7(ofaa396).
5. Mostaghimi, A.\*, Antonini, M.-J.\*, **Plana, D.\***, Anderson, P. D., Beller, B., Boyer, E. W., Fannin, A., Freake, J., Oakley, R., Sinha, M. S., Smith, L., Van, C., Yang, H., Sorger, P. K., LeBoeuf, N. R., & Yu, S. H. (2020). *Regulatory and Safety Considerations in Deploying a Locally Fabricated, Reusable Face Shield in a Hospital Responding to the COVID-19 Pandemic*. *Med*, 1(1), 139–151.e4.
6. Palmer, A. C.\*, **Plana, D.\***, & Sorger, P. K. (2020). *Comparing the Efficacy of Cancer Therapies between Subgroups in Basket Trials*. *Cell Systems*, 11(5), 449–460.e2.
7. Palmer, A. C.\*, **Plana, D.\***, Gao, H.\*, Korn, J. M., Yang, G., Green, J., Zhang, X., Velazquez, R., McLaughlin, M. E., Ruddy, D. A., Kowal, C., Muszynski, J., Bullock, C., Rivera, S., Rakiec, D. P., Elliott, G., Fordjour, P., ... Sorger, P. K. (2020). *A Proof of Concept for Biomarker-Guided Targeted Therapy against Ovarian Cancer Based on Patient-Derived Tumor Xenografts*. *Cancer Research*, 80(19), 4278–4287.
8. Kassamali, B., Yu, Z., Davis, C., Carmack, M., Bui, A.-T. N., Said, J. T., **Plana, D.**, Yang, H., Sorger, P., LeBoeuf, N. R., & LaChance, A. H. (2021). *Conversion of Existing UVB Phototherapy Units to UVC Germicidal Chambers for N95 Decontamination: Lessons Learned*. *Photobiomodulation, Photomedicine, and Laser Surgery*, 39(2), 83–85.
9. McAvoy, M.\*, Bui, A.-T. N.\*, Hansen, C.\*, **Plana, D.\***, Said, J. T., Yu, Z., Yang, H., Freake, J., Van, C., Krikorian, D., Cramer, A., Smith, L., Jiang, L., Lee, K. J., Li, S. J., Beller, B., Huggins, K., Short, M. P., Yu, S. H., ... LeBoeuf, N. R. (2021). *3D Printed frames to enable reuse and improve the fit of N95 and KN95 respirators*. *BMC Biomedical Engineering*, 3(1), 10.
10. Kothakonda, A.\*, Atta, L.\*, **Plana, D.\***, Ward, F. \*, Davis, C., Cramer, A., Moran, R., Freake, J., Tian, E., Mazor, O., Gorelik, P., Van, C., Hansen, C., Yang, H., Li, Y., Sinha, M. S., Li, J., Yu, S. H., LeBoeuf, N. R., & Sorger, P. K. (2021). *De Novo Powered Air-Purifying Respirator Design and Fabrication for Pandemic Response*. *Frontiers in Bioengineering and Biotechnology*, 9, 725.
11. Antonini, M.-J.\*, **Plana, D.\***, Srinivasan, S.\*, Atta, L., Achanta, A., Yang, H., Cramer, A. K., Freake, J., Sinha, M. S., Yu, S. H., LeBoeuf, N. R., Linville-Engler, B., & Sorger, P. K. (2021). *A Crisis-Responsive Framework for Medical Device Development Applied to the COVID-19 Pandemic*. *Frontiers in Digital Health*, 3, 617106.
12. Cramer, A. K.\*, **Plana, D.\***, Yang, H.\*, Carmack, M. M., Tian, E., Sinha, M. S., Krikorian, D., Turner, D., Mo, J., Li, J., Gupta, R., Manning, H., Bourgeois, F. T., Yu, S. H., Sorger, P. K., & LeBoeuf, N. R. (2021). *Analysis of SteraMist ionized hydrogen peroxide technology in the sterilization of N95 respirators and other PPE*. *Scientific Reports*, 11(1), 2051.
13. **Plana, D.\***, Tian, E.\*, Cramer, A. K.\*, Yang, H.\*, Carmack, M. M., Sinha, M. S., Bourgeois, F. T., Yu, S. H., Masse, P., Boyer, J., Kim, M., Mo, J., LeBoeuf, N. R., Li, J., & Sorger, P. K. (2021). *Assessing the filtration efficiency and regulatory status of N95s and nontraditional filtering face-piece respirators available during the COVID-19 pandemic*. *BMC Infectious Diseases*, 21(1), 712.
14. Ye, Z., Qian, J. M., Hosny, A., Zeleznik, R., **Plana, D.**, Likitlersuang, J., Zhang, Z., Mak, R. H., Aerts, H. J. W. L., & Kann, B. H. (2022). *Deep Learning-based Detection of Intravenous Contrast Enhancement on CT Scans*. *Radiology: Artificial Intelligence*, 4(3), e210285.
15. Peterson, J. S., **Plana, D.**, Bitterman, D. S., Johnson, S. B., Aerts, H. J. W. L., & Kann, B. H. (2022). *Growth in eligibility criteria content and failure to accrue among National Cancer Institute (NCI)-affiliated clinical trials*. *Cancer Medicine*, 12(4), 4715–4724.
16. **Plana, D.**, Shung, D. L., Grimshaw, A. A., Saraf, A., Sung, J. J. Y., & Kann, B. H. (2022). *Randomized Clinical Trials of Machine Learning Interventions in Health Care: A Systematic Review*. *JAMA Network Open*, 5(9), e2233946.
17. **Plana, D.\***, Palmer, A. C.\*, & Sorger, P. K. (2022). *Independent Drug Action in Combination Therapy: Implications for Precision Oncology*. *Cancer Discovery*, 12(3), 606–624.
18. **Plana, D.**, Fell, G., Alexander, B. M., Palmer, A. C., & Sorger, P. K. (2022). *Cancer patient survival can be parametrized to improve trial precision and reveal time-dependent therapeutic effects*. *Nature Communications*, 13(1), 873.
19. Kazmierski, M., Welch, M., Kim, S., McIntosh, C., Rey-McIntyre, K., Huang, S. H., Patel, T., Tadic, T., Milosevic, M., Liu, F.-F., Ryczkowski, A., Kazmierska, J., Ye, Z., **Plana, D.**, Aerts, H. J., Kann, B. H., Bratman, S. V., Hope, A.

- J., & Haibe-Kains, B. (2023). *Multi-institutional prognostic modelling in head and neck cancer: evaluating impact and generalizability of deep learning and radiomics*. Cancer Research Communications, CRC-22-0152
20. Hwangbo, H., Patterson, S. C., Dai, A., **Plana, D.**, & Palmer, A. C. (2023). *Additivity predicts the efficacy of most approved combination therapies for advanced cancer*. Nature Cancer, 1–12.
21. Zhou, I. \*, **Plana, D.** \*, & Palmer, A. C. (2024). *Tumor-specific activity of precision medicines in the NCI-MATCH trial*. Clinical Cancer Research, 30 (4): 786–792. \*These authors contributed equally.

## ABSTRACTS, DIGITAL PUBLICATIONS, AND FEDERAL COMMENTS

1. Cintolo-Gonzalez, J. A., Cohen, S., Michaud, W. A., **Plana, D.**, Panka, D. J., Sullivan, R., & Boland, G. (2017). *Society of Surgical Oncology 70th Annual Cancer Symposium: Use of Circulating Microvesicles, Exosomes, as a Biomarker to Track Response to Immunotherapy*. Annals of Surgical Oncology, 24(S1), 1–202.
2. Cohen, S., Cintolo-Gonzalez, J. A., **Plana, D.**, Sullivan, R., & Boland, G. (2017). *Society of Surgical Oncology 70th Annual Cancer Symposium: Mixed Responder Cohort of Metastatic Melanoma Patients Treated with Anti Programmed Cell Death-1*. Annals of Surgical Oncology, 24(S1), 1–202.
3. Kasumova, G. G., Shi, A., Cintolo-Gonzalez, J. A., Chein, I., Frederick, D. T., Alpatov, R., Michaud, W. A., **Plana, D.**, Panka, D. J., Corcoran, R. B., Flaherty, K. T., Sullivan, R. J., Kellis, M., & Boland, G. M. (2018). *Abstract A35: BRAF inhibition increases exosomal PD-L1 protein expression in melanoma*. Checkpoints and Immunomodulation.
4. Shi, A., Kasumova, G., Chien, I., Cintolo-Gonzalez, J., Frederick, D. T., Alpatov, R., Michaud, W. A., **Plana, D.**, Corcoran, R., Flaherty, K., Sullivan, R., Kellis, M., & Boland, G. (2018). *Abstract 4282: Deconvolution of plasma-derived exosomes for tracking and prediction of immunotherapy across multiple tissues*. Bioinformatics and Systems Biology, 4282–4282.
5. Kasumova, G. G., Kim, M. S., Shi, A., Chein, I., Frederick, D. T., Alpatov, R., Michaud, W. A., **Plana, D.**, Panka, D. J., Corcoran, R. B., Flaherty, K. T., & Sullivan, R. J. (2018). *Society of Surgical Oncology 71st Annual Cancer Symposium: Exosomal PD-L1 Protein Expression Correlates with Targeted Therapy Resistance in Melanoma*. Annals of Surgical Oncology, 25(S1), 1–230.
6. Shi, A., Cintolo-Gonzalez, J. A., Chien, I., Frederick, D. T., Alpatov, R., Michaud, W., **Plana, D.**, Panka, D., Corcoran, R., Flaherty, K., Sullivan, R., Kellis, M., & Boland, G. (2018). *Abstract B25: Exosomal transcriptomic signatures tracks and predicts response to checkpoint blockade immunotherapy*. Systems Immuno-Oncology.
7. **Plana, D.**, Arfè, A., & Sinha, M. S. (2020). *Re-Envisioning Clinical Trials During The COVID-19 Pandemic*. Health Affairs Blog.
8. **Plana, D.**, Arfe, A., & Sinha, M. S. (2020). *FDA-2020-D-1106-0139, Re: FDA Guidance on Conduct of Clinical Trials of Medical Products during COVID-19 Pandemic; Guidance for Industry, Investigators, and Institutional Review Boards*. Regulations.gov.
9. **Plana, D.** (2022). *Data science can help us run better cancer clinical trials*. Mathematical Oncology Blog.
10. Desai, V., Duggan, J., Glowala, J., Gupta, M., Kim, K., Liu, G., McDaniel, K., Nabel, K., Nagireddy, H., **Plana, D.**, Rencsok, E., Verheyen, C., Zhong, L. *Module 2: Epidemiology Principles*. (2020). HMS Medical Student COVID-19 Curriculum.
11. Gupta, A., **Plana, D.**, Antonini, M.J., Cramer, A., McAvoy, M., Atta, L. *HST students share their reflections on responding to Covid-19*. (2020). Harvard-MIT Health Sciences and Technology News.
12. Peterson, J. S., **Plana, D.**, Bitterman, D. S., Johnson, S. B., & Kann, B. H. (2021). *Growth in eligibility criteria content and failure to accrue among National Cancer Institute (NCI)-affiliated clinical trials*. Journal of Clinical Oncology, 39(15\_suppl), 1515–1515.
13. Johnson, S., Ojo, A., Erfani, P., Guo, R., Garmilla, A., Saini, A., Benitez, B., Salinas, K. E., **Plana, D.**, Perez, A. P., Guzman, J., So-Armah, C., & Gottlieb, B. (2022). *Re-engaging patients in breast cancer screening through a scalable, high-touch care model*. Journal of General Internal Medicine, S553–S553.
14. Ojo, A., Johnson, S., Erfani, P., Guo, R., Garmilla, A., Saini, A., Benitez, B., Salinas, K. E., **Plana, D.**, Pena Perez, A., Guzman, J., So-Armah, C., & Gottlieb, B. (2022). *A high-touch outreach model to re-engage patients in mammogram screening*. Journal of Clinical Oncology, 40(16\_suppl), e18555–e18555.
15. Ye, Z., Likitlersuang, J., Zeng, J., **Plana, D.**, Mak, R. H., Aerts, H., Haibe-Kains, B., Margalit, D. N., Schoenfeld, J. D., Tishler, R. B., & Kann, B. H. (2022). *Deep Learning for Automated Outcome Prediction in Oropharyngeal Cancer from Tumor and Lymph Node Imaging Data*. International Journal of Radiation Oncology • Biology • Physics, 114(3), e325.
16. Hwangbo, H., Patterson, S., Dai, A., **Plana, D.**, & Palmer, A. C. (2023). *Abstract 5718: Additivity predicts the clinical efficacy of most approved combination therapies for advanced cancer*. Cancer Research, 83(7\_Supplement), 5718–5718.

## ORAL PRESENTATIONS

1. **Plana, D.** *Using blood-based assays and RNA data to predict melanoma patient response to therapy.* Summer Research Trainee Program at the Massachusetts General Hospital. Boston, MA. June 2016.
2. **Plana, D.** *Parametric fitting of clinical trial data in oncology.* Harvard Institute for Therapeutic Sciences Symposium. Boston, MA. October 2019.
3. **Plana, D.** *Of mice and (small numbers of) men: Improving estimates of drug efficacy in oncology.* Harvard Systems Biology Department Pizza Talk. Boston, MA. October 2019.
4. **Plana, D.** *Parametric fitting of over 100,000 individual patient events from clinical trials in oncology.* Harvard-MIT Center for Regulatory Science Doctoral Student Symposium. Boston, MA. February 2020.
5. **Plana, D.** *Introduction to PanFab: Mobilizing a volunteer response to COVID-19 (Speaker); Resiliency and Trust: Local, regional, and national response to PPE shortages (Panelist).* Harvard-MIT Center for Regulatory Science Pandemic Response: Resilience and Recovery in the Era of COVID-19. Virtual. June 2020.
6. **Plana, D.** *Making Precise Estimates of Drug Efficacy from Small Amounts of Patient Data.* Tumor Therapeutics and Resistance Session; Junior Investigator Meeting for the NCI Cancer Systems Biology Consortium, Physical Sciences-Oncology Network, and the Big Data Scientist Training Enhancement Program. Virtual. August 2020.
7. **Plana, D.,** Palmer, A.C., Sorger, P.K. *Advancing the design and interpretation of cancer clinical trials through systematic data mining and analysis.* HMS Ludwig Cancer Center. Virtual. June 2021.
8. **Plana, D.** *Biological Engineering as a Foundation for a Career in Medical Research.* 20.001: MIT Introduction to Professional Success and Leadership in Biological Engineering. Cambridge, MA. November 2022.
9. **Plana, D.** *Highlights from the Bigelow: Residency Intake.* MGH Department of Medicine Noon Conference. Boston, MA. April 2023.

## POSTER PRESENTATIONS

1. **Plana, D.,** Cocchi, M., Sundar, E., Pleumann, A., Grzybinski, M., Shaeff, S., Brogna, M. J., Sisti, L., Butler, K. L., Small, A., Cain, C., Muret-Wagstaff, S., Foley, J., Talmor, D., Ma, H., Whyte, R., Kleinman, G., Simon, B. A. *Early Identification and Care of the Critically Ill Post-Operative Patient.* Beth Israel Deaconess Medical Center Silverman Symposium. Boston, MA. April 2015.
2. **Plana, D.,** Hill, A., Cook, C., Griffith, L., Lauffenburger, D. *Creating a 3-D hydrogel model of the human endometrium and its interactions with immunological factors.* New England Science Symposium. Cambridge, MA. April 2016.
3. **Plana, D.,** Wang, S., Cepko, C. *Characterization of retinal cell subpopulations expressing distinct Otx2 enhancers.* Howard Hughes Medical Institute Exceptional Research Opportunities Program Meeting. Chevy Chase, MD. May 2016.
4. Cintolo-Gonzalez, J., Michaud, W., Cohen, S., **Plana, D.,** Panka, D., Sullivan, R., Boland, G. *Use of Circulating Microvesicles, Exosomes, as a Biomarker to Track Disease Burden in Melanoma.* Massachusetts General Hospital Clinical Research Day. Boston, MA. October 2016.
5. **Plana, D.,** Hill, A., Cook, C., Griffith, L., Lauffenburger, D. *Characterizing a 3-D hydrogel model of the human endometrium and its interactions with immunological factors using mixed effects modeling.* Biomedical Engineering Society Conference. Minneapolis, MN. October 2016.
6. **Plana, D.,** Palmer, A. C., Sorger, P.K. *Predicting patient response to cancer combination therapies from clinical trial data.* Novartis-Academia Conference on Quantitative Sciences in Drug Development. Cambridge, MA. August 2018.
7. **Plana, D.,** Palmer, A. C., Sorger, P.K. *Making Precise Estimates of Drug Efficacy from Small Amounts of Patient Data.* NCI Center for Cancer Systems Pharmacology Annual Investigators Meeting. Virtual. September 2020.
8. **Plana, D.,** Fell, G., Alexander, B. M., Palmer, A. C., & Sorger, P. K. *Cancer patient survival can be accurately parameterized, revealing time-dependent therapeutic effects and doubling the precision of small trials.* Keystone Symposia, Precision Oncology: Translating Discovery to the Clinic. Virtual. June 2021.
9. **Plana, D.,** Fell, G., Alexander, B. M., Palmer, A. C., & Sorger, P. K. *Re-analysis and sharing of clinical trial data to advance precision oncology.* 2021 Cancer Systems Biology Consortium Annual Investigator Meeting. Virtual. September 2021.
10. **Plana, D.,** Guntaka, P. K., Qian, J. M., Zhou, P., Hosny, A., Margalit, D. N., Schoenfeld, J. D., Tishler, R. B., Haddad, R. I., Uppaluri, R., Haibe-kains, B., Aerts, H., Kann, B. H. *Deep Learning and Harmonization of Multi-Institutional Data for Automated Gross Tumor and Nodal Segmentation for Oropharyngeal Cancer.* American Society for Radiation Oncology Annual Meeting. Virtual. October 2021.
11. **Plana, D.,** Fell, G., Alexander, B. M., Palmer, A. C., & Sorger, P. K. *Cancer patient survival can be accurately parameterized, improving trial precision and revealing time-dependent therapeutic effects.* Pacific Symposium on Biocomputing (PSB). Big Island, HI. January 2022.