

Thoracic oncology lab

The thoracic oncology lab is engaged in translational research in lung cancer focused on:

- Identification of mechanisms that predict the sensitivity to targeted therapies/immunotherapy.
- Identification of mechanisms of resistance in tumors harboring known driver alterations.
- Definition of new molecular-subgroups using next generation sequencing strategies.
- Establish tools for immunotherapy treatment optimization.
- Implementing new technologies in the clinical setting (tumor-educated platelets, tumor mutational burden...).

Lab members

- Translational investigator, Ramon Amat
- Bioinformatician, Joan Frigola (September 2019)
- Research technician, Caterina Carbonell

Ongoing research projects

- Identification with massive sequencing technologies of new genetic alterations for targeted therapies in lung cancer.
- Use of next-generation sequencing technologies for the identification of new therapeutic targets and prognostic markers in lung carcinoma poorly characterized.
- Patient-derived orthotopic xenografts for assessment of acquired resistance mechanisms in oncogene-driven lung cancers.
- Wnt/beta-catenin pathway activation in advanced non-small cell lung cancer: implications in resistance to immunotherapy and novel therapeutic strategies.
- New technologies for new treatments: liquid biopsy meets immunotherapy.
- Non-invasive prognostic markers for resected early-STage NSCLC: role of circulating and exosomal miRNAs and free circulating DNA.
- Multiple primary tumors in lung cancer patients: comprehensive molecular profiling to elucidate common genetic origins.

Publications

- Cedrés S, Felip E, Cruz C, Martínez de Castro A, Pardo N, Navarro A, Martínez-Martí A, Remon J, Zeron-Medina J, Balmaña J, Llop-Guevara A, Miquel JM, Sansano I, Nuciforo P, Mancuso F, Serra V, Vivancos A. Activity of HSP90 Inhibitor in a Metastatic Lung Cancer Patient With a Germline BRCA1 Mutation. *J Natl Cancer Inst.* 2018 Feb 26. doi: 10.1093/jnci/djy012.
- Martínez-Martí A, Felip E, Matito J, Mereu E, Navarro A, Cedrés S, Pardo N, Martínez de Castro A, Remon J, Miquel JM, Guillaumet-Adkins A, Nadal E, Rodríguez-Esteban G, Arqués O, Fasani R, Nuciforo P, Heyn H, Villanueva A, Palmer HG, Vivancos A. Dual MET and ERBB inhibition overcomes intratumor plasticity in osimertinib-resistant advanced non-small-cell lung cancer (NSCLC). *Ann Oncol.* 2017 Oct 1;28(10):2451-2457. doi: 10.1093/annonc/mdx396.
- Prat A, Navarro A, Paré L, Reguart N, Galván P, Pascual T, Martínez A, Nuciforo P, Comerma L, Alos L, Pardo N, Cedrés S, Fan C, Parker JS, Gaba L, Victoria I, Viñolas N, Vivancos A, Arance A, Felip E. Immune-Related Gene Expression Profiling After PD-1 Blockade in Non-Small Cell Lung Carcinoma, Head and Neck Squamous Cell Carcinoma, and Melanoma. *Cancer Res.* 2017 Jul 1;77(13):3540-3550. doi: 10.1158/0008-5472.CAN-16-3556.
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- De Mattos-Arruda L, Mayor R, Ng CK, Weigelt B, Martínez-Ricarte F, Torrejon D, Oliveira M, Arias A, Raventos C, Tang J, Guerini-Rocco E, Martínez-Sáez E, Lois S, Marín O, de la Cruz X, Piscuoglio S, Towers R, Vivancos A, Peg V, Ramon y Cajal S, Carles J, Rodon J, González-Cao M, Tabernero J, Felip E, Sahuquillo J, Berger MF, Cortes J, Reis-Filho JS, Seoane J. Cerebrospinal fluid-derived circulating tumour DNA better represents the genomic alterations of brain tumours than plasma. *Nat Commun.* 2015 Nov 10;6:8839. doi: 10.1038/ncomms9839.
- Thress KS, Paweletz CP, Felip E, Cho BC, Stetson D, Dougherty B, Lai Z, Markovets A, Vivancos A, Kuang Y, Ercan D, Matthews SE, Cantarini M, Barrett JC, Jänne PA, Oxnard GR. Acquired EGFR C797S mutation mediates resistance to AZD9291 in non-small cell lung cancer harboring EGFR T790M. *Nat Med.* 2015 Jun;21(6):560-2. doi: 10.1038/nm.3854.
- Serra V, Vivancos A, Puente XS, Felip E, Silberschmidt D, Caratù G, Parra JL, De Mattos-Arruda L, Grueso J, Hernández-Losa J, Arribas J, Prudkin L, Nuciforo P, Scaltriti M, Seoane J, Baselga J. Clinical response to a lapatinib-based therapy for a Li-Fraumeni syndrome patient with a novel HER2V659E mutation. *Cancer Discov.* 2013 Nov;3(11):1238-44. doi: 10.1158/2159-8290.CD-13-0132.