

Organotypic culture is defined as the culture of an organ collected from an organism. It is one method allowing the culture of complex tissues or organs. It allows the preservation of the architecture of the cultured organ and most of its cellular interactions.

Zhu et al. reported a medium-throughput [drug screening](#) platform (METPlatform) based on [organotypic cultures](#) that allow evaluating inhibitors against [metastases](#) growing in situ. By applying this approach to the unmet clinical need of [brain metastases](#), they identified several vulnerabilities. Among them, a [blood-brain barrier](#) permeable [HSP90](#) inhibitor showed high potency against [mouse](#) and human [brain metastases](#) at clinically relevant stages of the [disease](#), including a novel model of local relapse after neurosurgery. Furthermore, in situ [proteomic](#) analysis applied to metastases treated with the chaperone inhibitor uncovered a novel molecular program in brain metastases, which includes [biomarkers](#) of poor prognosis and actionable mechanisms of resistance. The work validates METPlatform as a potent resource for metastases research integrating [drug screening](#) and unbiased [omics](#) approaches that are compatible with human samples. Thus, this clinically relevant strategy is aimed to personalize the management of metastatic disease in the brain and elsewhere ¹⁾.

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Zhu L, Retana D, García-Gómez P, Álvaro-Espinosa L, Priego N, Masmudi-Martín M, Yebra N, Miarka L, Hernández-Encinas E, Blanco-Aparicio C, Martínez S, Sobrino C, Ajenjo N, Artiga MJ, Ortega-Paino E, Torres-Ruiz R, Rodríguez-Perales S; RENACER, Soffietti R, Bertero L, Cassoni P, Weiss T, Muñoz J, Sepúlveda JM, González-León P, Jiménez-Roldán L, Moreno LM, Esteban O, Pérez-Núñez Á, Hernández-Laín A, Toldos O, Ruano Y, Alcázar L, Blasco G, Fernández-Alén J, Caleiras E, Lafarga M, Megías D, Graña-Castro O, Nör C, Taylor MD, Young LS, Varešlija D, Cosgrove N, Couch FJ, Cussó L, Desco M, Mouron S, Quintela-Fandino M, Weller M, Pastor J, Valiente M. A clinically compatible drug-screening platform based on organotypic cultures identifies vulnerabilities to prevent and treat brain metastasis. EMBO Mol Med. 2022 Feb 17:e14552. doi: 10.15252/emmm.202114552. Epub ahead of print. PMID: 35174975.

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