

Entity: Vall d'Hebron Institut de Recerca (VHIR)

Research group, Unit or Department: Recerca Translacional en el Càncer de la Infància i l'Adolescència – Laboratori de Sarcomes

Student's tutor: Josep Roma

Positions available: 1

Project description/ Research lines: **Sarcoma Laboratory** - Rhabdomyosarcoma is the most common soft tissue sarcoma in children. Overall survival from this neoplasia is approximately 65%; however, patients with metastasis or disease progression during or after therapy have particularly poor prognosis. For these patients, the search for new therapies that directly affect molecular targets would result in more effective means of overcoming resistance to treatment, thereby improving their chances of cure. For this reason, our research group focuses on the search for new therapeutic targets such as (1) developmental signal transduction pathways (Notch and Hedgehog), (2) pro-metastatic proteins (ITGA-9 and N-CAD) and (3) cancer stem cells. **Main goals:** (1) Our work on the Notch pathway has laid the keystone for establishing a crucial role of the Notch pathway for the metastatic phenotype in RMS (Clinical Cancer Research 2011; British Journal of Cancer 2012). (2) The recent identification of ITGA9 and N-CAD as crucial proteins in the invasive phenotype of RMS cells made in our laboratory (Br J Cancer 2012) supports these proteins as interesting targets in the fight against metastasis. (3) This line of research permitted the identification and sorting of tumour-initiating cells in rhabdomyosarcoma and the characterisation of Notch and Hedgehog pathway activation. **Capacity to Translation:** (1) Further characterisation of Notch and Hedgehog activation and the use of specific inhibitors against these pathways in vivo may constitute a new therapeutic approach specially indicated in high-risk patients. (2) We have started a research line identifying novel inhibitors for ITGA9, designed and synthesised in collaboration with industry, with the aim of developing and launching new therapeutic approaches for RMS patients, particularly for those refractory to conventional therapies.

Period for the internship: There is not a requirement on this, all periods can be acceptable

Requirements:

- Excellent English level
 - Good academic records
 - All degrees in sciences can be acceptable
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Where to apply: Interested candidates please send an email including a *CV and academic records* to Josep Roma (josep.roma@vhir.org)
