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Insights into the role of PIK3CA alterations in bladder cancer

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Bladder cancer is the fifth most common cancer in men worldwide, with major risk factors including age, tobacco smoking, and occupational exposure to aromatic amines. It represents the seventh cause of death from cancer in men and the eighth in women. In addition, it is one of the most costly malignancies to health care systems due to its frequent recurrences. The phosphatidylinositol 3-kinase (PI3K) pathway is involved in controlling cell growth, tumorigenesis, cell invasion and drug response. Alterations in PIK3CA gene, which encodes the p110α catalytic subunit of PI3K, have been reported in numerous human cancers. Most of the mutations cluster at hotspots within the helical and kinase domains. In this study, we have analyzed the mutation, copy gain and expression of PIK3CA gene in a series of human bladder cancer samples. Our data indicate that mutations in PIK3CA gene are an early and extremely frequent event in these tumors, predominantly affecting the helical domain. Interestingly, patients showing any alteration in PIK3CA gene displayed a lower index of recidive. Moreover, trasncriptomic analyses by microarrays may explain the unexpected behavior of bladder cancers bearing PIK3CA mutations. In conclusion, since our findings indicate a good prognosis significance of PIK3CA alterations, mutation assays could represent a potential biomarker to detect recurrences during surveillance, especially in the case of early bladder neoplasms.

Biography

Mónica Martínez-Fernández completed his Ph.D 2 years ago from the University of Vigo (Spain). Then, she got a national postdoctoral fellowship to work in the Molecular Oncology Unit of CIEMAT (Centre for Energy, Environmental and Technological Research) in Madrid (Spain). She has participated in more than 10 projects, published 9 papers in reputed journals, first author for most of them, and serving as a peer-reviewer for 6 journals of repute

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