In triple negative breast tumor cells, PLC- β 2 promotes the conversion of CD133^{high} to CD133^{low} phenotype and reduces the CD133-related invasiveness

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Beyond its possible relationship with stemness of tumor cells, CD133/prominin is a highly glycosylated trans-membrane protein that correlates with tumor size, metastasis and clinical stage of triple negative breast cancers (TNBC), that represent 20% of all breast tumors and have a particularly worse clinical outcome than other tumor subtypes [1]. The correlation between the levels of CD133 expression and the biology of breast tumor cells was studied in CD133low and CD133high cell subpopulations isolated from MDA-MB-231 cells (ER-, PR-, HER2-). High expression of CD133 characterizes a small percentage of cells with larger adhesion area, lower proliferation rate, higher invasion capability and increased expression of proteins involved in metastasis and drug resistance of breast cancers. PLC-β2 expression, that plays a crucial role in malignancy of breast tumor cells [2, 3], inversely correlates with the levels of CD133 and has a role in inducing the CD133high cells to CD133low cells conversion. The forced up-regulation of PLC-β2 counteracts the invasiveness of CD133high MDA-MB-231, suggesting that, in TNBC, the de-regulation of this PLC isozyme is responsible of the switch from an early to a mature tumoral phenotype also by reducing the expression of CD133. These data might contribute to identify unexplored key steps in TNBC malignancy, to be considered for potential therapeutic strategies.

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References

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Key	words				
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