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INSTITUT LADY DAVIS DE RECHERCHES MÉDICALES | LADY DAVIS INSTITUTE FOR MEDICAL RESEARCH

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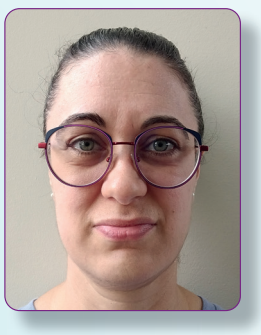

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CANCER RESEARCH

The Neurodevelopmental Protein POGZ Suppresses Metastasis in Triple Negative Breast Cancer by Attenuating TGFβ Signaling

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The pogo transposable element derived zinc finger protein, POGZ, is notably associated with neurodevelopmental disorders through its role in gene transcription. Many proteins involved in neurological development are often dysregulated in cancer, suggesting a potential role for POGZ in tumor biology.

In this study, we provided experimental evidence that POGZ influences the growth and metastatic spread of triple negative breast cancers (TNBC). In well-characterized models of TNBC, POGZ exerted a dual role, both as a tumor promoter and metastasis suppressor. Mechanistically, loss of POGZ potentiated TGFβ pathway activation to exert cytostatic effects while simultaneously increasing the mesenchymal and migratory properties of breast tumors.

Whereas POGZ levels are elevated in human breast cancers, the most aggressive forms of TNBC tumors, including those with increased mesenchymal and metastatic properties, exhibit dampened POGZ levels, and low POGZ expression was associated with inferior clinical outcomes in these tumor types.

Taken together, these data suggest that POGZ is a critical suppressor of the early stages of the metastatic cascade.

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