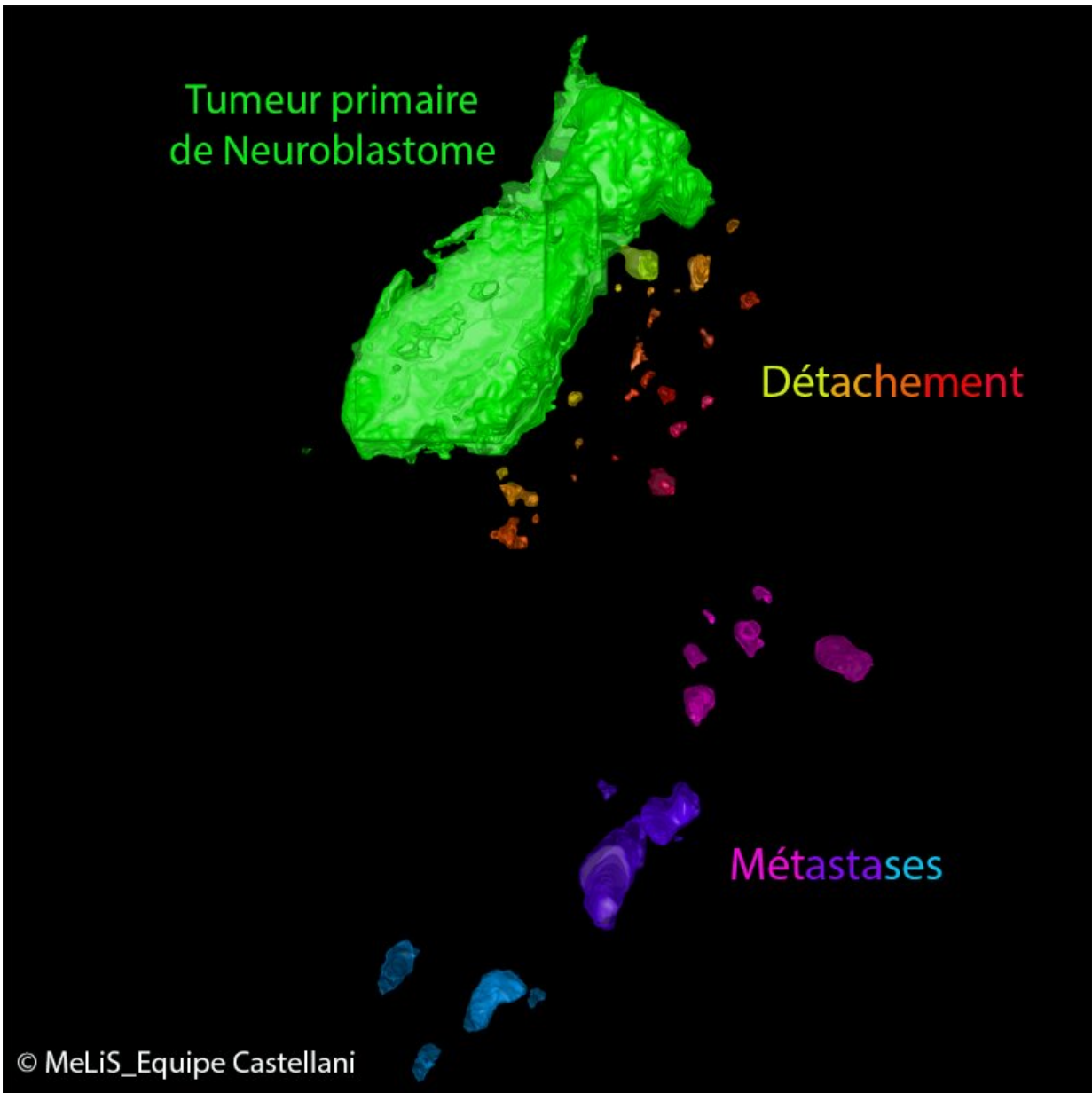


Healthy cells can impact tumor progression during embryonic development

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Avian embryo model of neuroblastoma. Physiological signals from embryonic tissues in which tumours develop cause some cells to acquire more aggressive traits, break away, and spread to remote sites, seeding metastases. Credit: MeLiS_Equipe Castellani

Half of childhood cancers arise during the development of the human embryo, which greatly complicates research into these diseases. The team of Valérie Castellani, CNRS senior researcher at the Mechanisms in Integrated Life Sciences (MeLiS) laboratory (CNRS / INSERM / Claude Bernard Lyon 1 University) has thus developed a model that optimally simulates the human embryonic environment by grafting human cancer cells into a chick embryo.

This new method, for which Castellani won the 2018 CNRS Medal of Innovation, makes it possible to explore the mechanisms of metastasis, i.e., how [cancer cells](#) spread throughout the body, and to investigate the role of [normal cells](#) in the behavior of malignant ones. Using the chick embryo model, Castellani's team, in partnership with the Biology and Biotechnology for Health (BioSanté) laboratory (CEA / INSERM / Université Grenoble Alpes) and the Lyon Pediatric Hematology and Oncology Institute (Centre Léon Bérard / Hospices Civils de Lyon), trained their attention on neuroblastomas, pediatric cancers originating in neurons that have yet to mature. The metastatic forms of these cancers are extremely aggressive.

Published in *Nature Communications* (10 May 2022) and led by Dounia Ben Amar, a Ph.D. student co-supervised by CNRS researcher Céline Delloye-Bourgeois, the study found that certain healthy, developing neurons promote metastatic behavior in the neuroblastoma cells with which they come into contact. It not only shows that normal cells can play a part in tumor progression during [embryonic development](#), but also

illustrates the importance of better understanding the unique developmental environment within which cancers of embryonic origin form.

More information: Dounia Ben Amar et al, Environmental cues from neural crest derivatives act as metastatic triggers in an embryonic neuroblastoma model, *Nature Communications* (2022). [DOI: 10.1038/s41467-022-30237-3](https://doi.org/10.1038/s41467-022-30237-3)

Provided by CNRS

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