

# Moving toward the first in-human trial to image and treat aggressive brain tumors

May 12 2022

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Credit: AI-generated image ([disclaimer](#))

A novel technology designed to precisely image aggressive brain cancers and guide treatment is being developed by the University of South Australia and Australian cancer diagnostic company, Ferronova, potentially helping thousands of people who are diagnosed with the deadly condition each year.

The new MRI nanotechnology targets a specific marker that is found in more than 90% of solid tumors, including high-grade brain cancers.

Already yielding promising preclinical results in a prostate cancer model, the new MRI [technology](#) has potential to have a significant impact on aggressive brain cancers. The new funding will progress the technology towards a first in-human trial.

UniSA's Dr. Nicole Dmochowska will lead the research, supported by a REDI Fellowship, announced today by The Hon Greg Hunt MP.

Dr. Dmochowska says there is a critical need for better imaging of high-grade brain tumors.

"The prognosis for high-grade brain tumors such as glioblastoma remains abysmal, so it's vital that we progress new technologies that can potentially enable more precise targeting of tumors," Dr. Dmochowska says.

"This research will advance a cutting-edge imaging technology developed in collaboration with Ferronova and with the support of the NeuroSurgical Research Foundation designed to more accurately image and therefore treat brain tumors with no additional neurotoxicity.

Dr. Hien Le, a radiation oncologist at the Royal Adelaide Hospital and one of the Chief Investigators in the seed funding for this work, says the research has potential to advance cancer treatments.

"As someone who specializes in the management of brain cancer, I understand the importance of accurate tumor delineation," Le says

"Better imaging means we can more confidently define the tumor target, facilitating precise treatment delivery, whilst minimizing damage to

normal healthy tissues."

In 2021, there were [1896 new diagnoses](#) of brain cancer (1191 males and 725 females). Glioblastoma is the most common brain malignancy with a five-year [survival rate of only 5 percent](#).

Dr. Melanie Nelson, R&D Manager at Ferronova, says the [research](#) will streamline preclinical validations for the technology for [brain](#) tumors, in preparation for a phase 1 'first in human' clinical trial.

"Ferronova is determined to transform the precision of cancer imaging, surgery and therapy to ensure that everyone diagnosed with cancer is given the best possible care," Dr. Nelson says.

"The new technology builds on Ferronova's cancer staging technology [FerroTrace](#) currently undergoing clinical trials in several cancer types.

"By bringing together the best minds in chemistry, bioengineering and oncology we're continuing to push the boundaries to help make sure no one dies unnecessarily because a [cancer](#) was missed."

Provided by University of South Australia

Citation: Moving toward the first in-human trial to image and treat aggressive brain tumors (2022, May 12) retrieved 1 May 2024 from <https://medicalxpress.com/news/2022-05-in-human-trial-image-aggressive-brain.html>

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