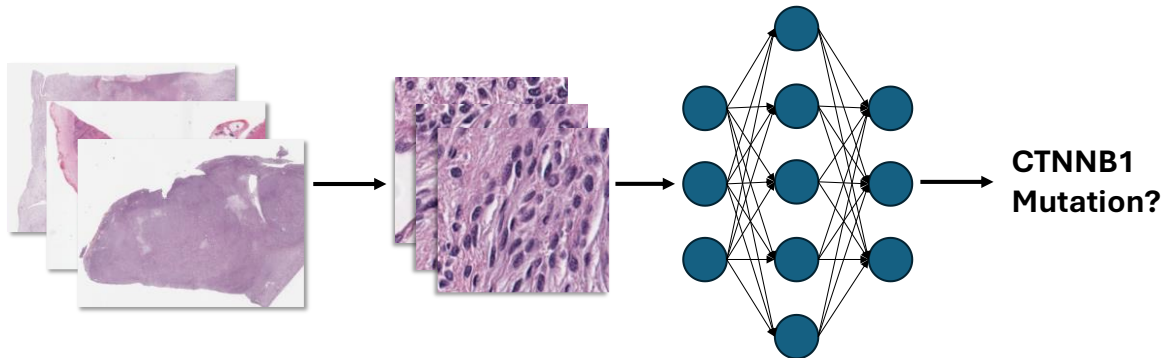


# Predicting CTNNB1 S45F Mutation in Desmoid Tumors from H&E-Stained Histopathology Images



**Research Line:** Artificial Intelligence for Integrated Diagnostics (AIID)  
**Project type:** Master Project  
**Approx. duration:** 6 to 9 months



## Background

Desmoid tumors are rare soft tissue neoplasms that exhibit local invasiveness without metastatic potential. A significant subset of sporadic desmoid tumors harbors activating mutations in the CTNNB1 gene, particularly the S45F mutation, which is associated with higher recurrence risk and poorer response to conservative therapies. Detecting this mutation currently requires molecular assays, which are costly and not always available in resource-limited settings. This project explores the potential of using deep learning to predict S45F mutation status directly from histology images, enabling a scalable screening alternative.

## Aim

The aim of this project is to develop and validate a deep learning model that predicts the presence of the CTNNB1 S45F mutation in desmoid tumors from H&E-stained whole slide images. The model will be trained using annotated data with known mutation status and will explore image-based features that correlate with underlying molecular changes. The project will involve data preprocessing, model development (e.g., using convolutional neural networks or vision transformers), and evaluation of predictive performance. This work has the potential to improve personalized decision-making in desmoid tumor management.

## Related research

- <https://doi.org/10.3389/fonc.2023.1206800>
- <https://doi.org/10.1016/j.ejca.2024.114270>



## Interested in this project?

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