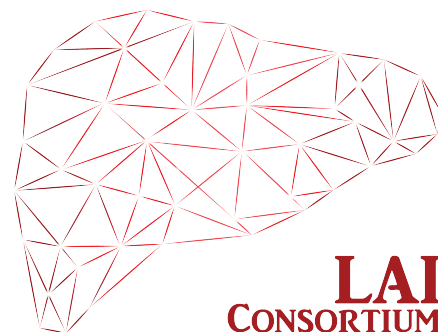


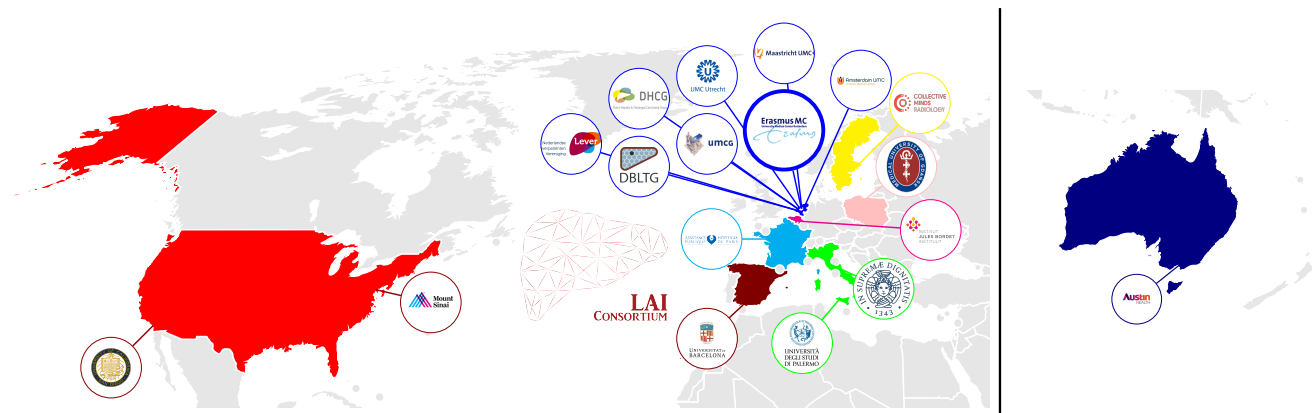
# The Liver Artificial Intelligence (LAI) consortium

*a benchmark dataset and optimized machine learning methods  
for MRI-based diagnosis of solid appearing liver lesions*

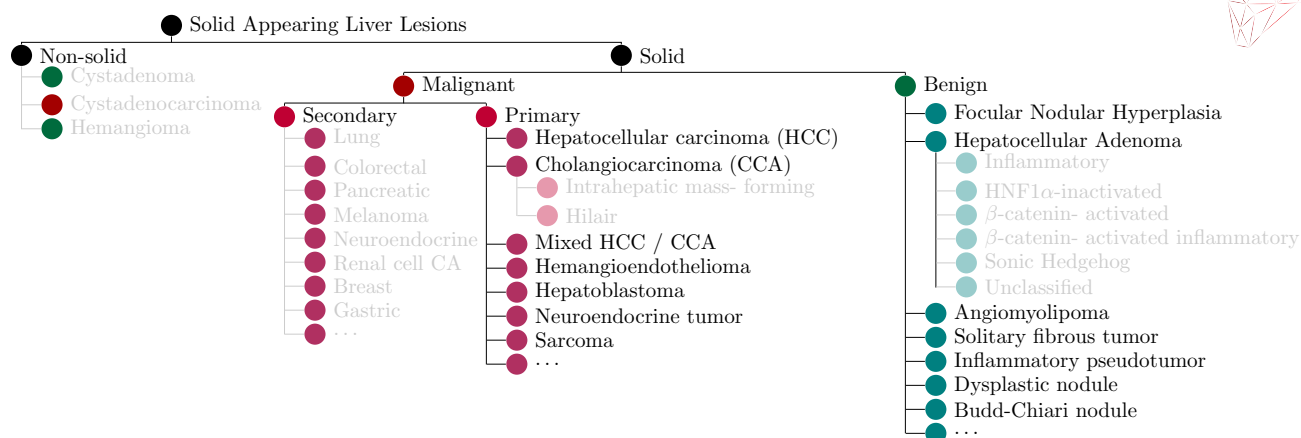


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## Purpose

There exists a wide variety of phenotypes of solid (appearing) liver lesions (see figure). Diagnosis of a specific solid liver lesion, and additionally liver diseases, is one of the main challenges for abdominal radiologists, even for the most common types. The decision to biopsy or apply specific treatment is based on the findings by the radiologists. However, due to the wide variety of lesions, appearances, and MRI sequences this diagnosis is challenging and there is a lack of consensus.

Artificial Intelligence (AI) methods have shown to be successful in aiding diagnosis in various diseases. However, in solid-appearing liver lesions, the role of AI is small, which may be attributed to the lack of large, multicenter datasets to train and validate these methods.

The goals of the Liver AI (LAI) consortium are therefore:

1. To create a benchmark MRI data collection (3000+ patients), accessible to researchers worldwide, for the development and validation of machine learning methods for solid-appearing liver lesions.
2. To optimize the construction of a machine learning model for comprehensive MRI-based liver lesion phenotyping through robust automatic machine learning.
3. To validate the model from a technical perspective in a grand challenge, and from a clinical perspective by evaluating the clinical usability with end-users with a focus on interpretability.

## Impact

Our aim is to fast-forward the development, implementation, and validation of machine learning methods that could support MRI-based solid appearing liver lesion diagnosis. The resulting transparent program will aid the radiologists in making a confident diagnosis concerning solid liver lesions and underlying liver diseases. The resulting dataset may be used by others for benchmarking and validation of methods in a wide variety of liver cancer decision processes. The resulting model is non-invasive, low cost, quick and easy to use. Thereby, we achieve to improve diagnostic accuracy, simultaneously preventing unnecessary treatment and unnecessary biopsies. This will result in a reduction in health-care costs, but also improved treatment for the patient. Find more information at <https://lai-consortium.org/>.

### **Member benefits**

As a member of the LAI consortium, you will gain several benefits:

- Co-authorship(s) on the dataset paper(s), which will have a high impact and will be often cited.
- We will curate, organize, register and segment your data.
- Early access to the complete curated LAI dataset, including the data from the other members, on which you can conduct your own research.
- Participation in a large network of international opinion leaders.