

- [Project Plan](#)
  - [Cohorts:](#)
    - [Original Lancet Set:](#)
    - [Extended:](#)
  - [Models:](#)
  - [Tasks:](#)
    - [Current:](#)
    - [Future:](#)
  - [Plan:](#)

# Project Plan

---

Benchmark on what model is best for weakly supervised Transplant pathology classification

## Cohorts:

---

### Original Lancet Set:

```
Training:
- AMS: 1130 Biopsies (3390 WSI)
- Utrecht: 717 Biopsies (2151WSI)
Testing:
- Aachen: 101 Biopsies (303 WSI)
```

### Extended:

- Training:
  - AMS + Utrecht + Leuven
- Testing:
  - Aachen\_extended:

## Models:

---

- AttentionMIL
- Resnet18
- ViT
- CLAM
- TransMIL
- Monai MIL

# Tasks:

---

## Current:

- (1) Normal vs Diseased
- (2) Rejection vs (Viral + Others)
- (3) Normal vs Rejection vs (Viral + Others)

## Future:

- (4) Normal vs TCMR vs Mixed vs ABMR vs Viral vs Others
- (5) TCMR vs Mixed vs ABMR

# Plan:

---

1. Train models for current tasks on AMS+Utrecht -> Validate on Aachen
  - Resnet18: Trained on all tasks via HIA (Task 1: auc: 0.56)
    - Vit: Trained on all tasks via HIA (similar to R18)
    - CLAM: Trained on (1) via HIA (similar to R18)
    - TransMIL: Trained, but overfitting
      - Sanity test with RCC
      - (mixing in 10 slides from Aachen increases auc performance from 0.7 to 0.89)
  - AttentionMIL: WIP
    - Monai MIL: WIP
2. Visualization, AUC Curves
3. Train best model on extended training set (AMS+Utrecht+Leuven) (Tasks 1,2,3) -> Validate on Aachen\_extended

- Investigate if a larger training cohort increases performance
4. Train best model on extended dataset on future tasks (Task 4, 5)