

# The effect of hypoxia condition on autonomic innervation

## Background

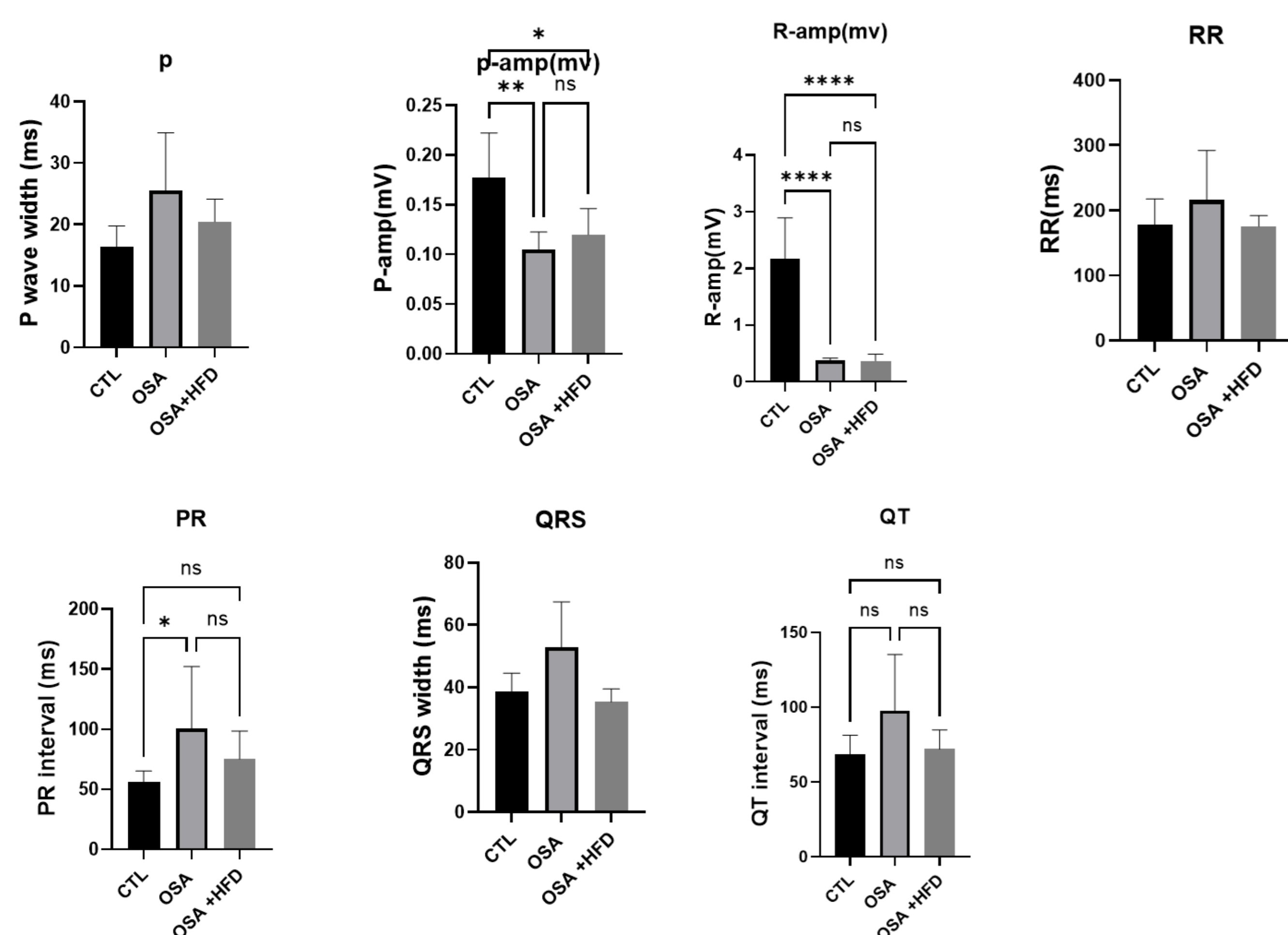
- Chronic intermittent hypoxia (CIH) is a distinct pathological mechanism of obstructive sleep apnea (OSA), which is recognized as an independent risk factor for cardiovascular diseases.
- Autonomic nervous system disturbance is often co-existing with cardiovascular diseases. Sympathetic overactivity and/or vagal dysfunction are powerful adverse outcome indicators for morbidity and mortality of cardiac arrhythmias.

## Aim

The aims of this study were to confirm

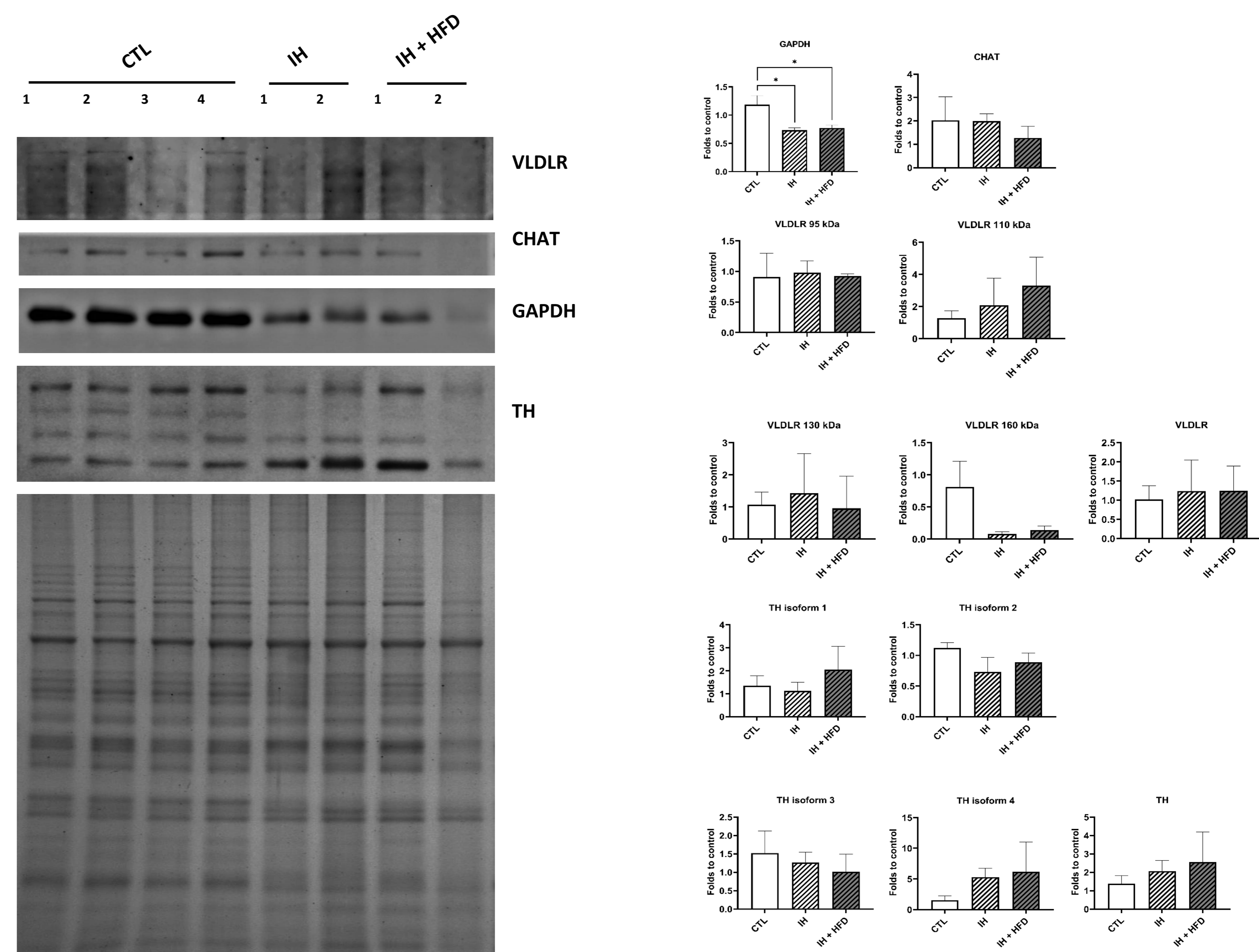
- whether CIH induces atrial fibrillation (AF).
- whether CIH induces cardiac sympathetic hyperinnervation.

## Results



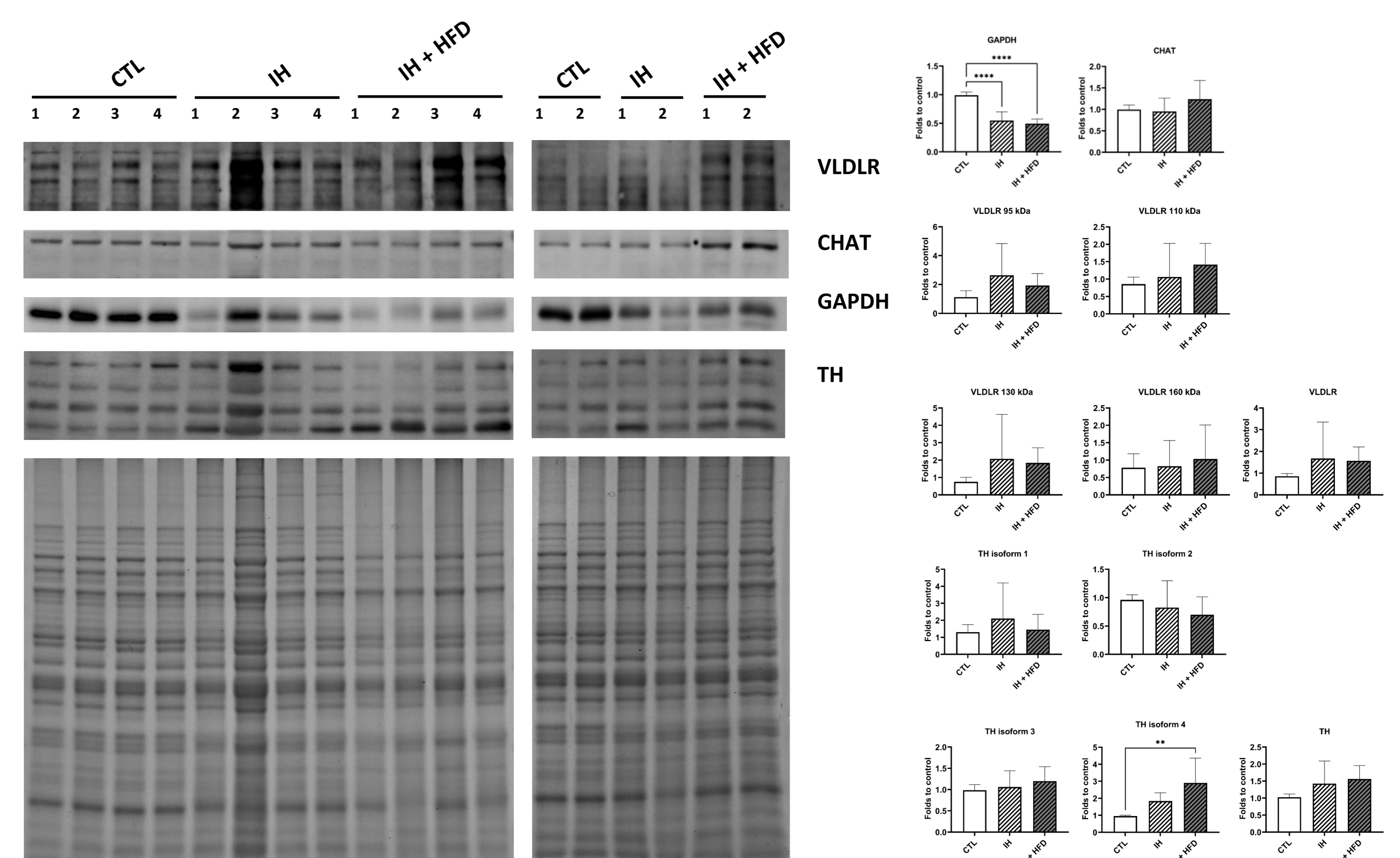
**Figure 1. Echocardiography parameters and images.**

From the mouse of groups including B6129S7 wild type control (CTL,n=8),wild type on obstructive sleep apnea (OSA,n=6), and on OSA combined high-fat diet, (OSA+HFD,n=6) \*  $p \leq 0.05$



**Figure 2. Western blot images of right atrium.**

From the mouse of groups including B6129S7 wild type control (CTL,n=4),wild type on intermittent hypoxia (IH,n=2), and on IH combined high-fat diet, (IH+HFD,n=2) \*  $p \leq 0.05$



**Figure 3. Western blot images of ventricle.**

From the mouse of groups including B6129S7 wild type control (CTL,n=4),wild type on intermittent hypoxia (IH,n=6), and on IH combined high-fat diet, (IH+HFD,n=6) . \*  $p \leq 0.05$ .

## Conclusion

- Echocardiography parameters of B6129S7-WT mice treated with CIH suggest that CIH is a significant risk factor which may induce atrial fibrillation (AF).
- IH with and without the combination of HFD induced sympathetic nerve hyperinnervation in ventricle and right atrial tissue of B6129S7-WT mice.