

# 1 Introduction

## 2 Methods

The sequence for the domain Tau-5 of Human Androgen Receptor-1 (AR1) and mutant *W393A*, *W433A* are shown in Table 1.

Table 1: Primary Residue Sequence for AR1 Tau-5\* domain. Mutationed residues are displayed in red.

Peptide	Sequence
WT	GPAAGSSGTLELPSTLSLYKSGALDEAAAYQSRDYNNFPLALAGPPPPPPPP HPHARIKLENPLDYGSAAAAAAQCRYGDLASLHGAGAAGPGSGSPSAAAS SSWHTLFTAEEGQLYGPC
<i>W393A</i> , <i>W433A</i>	GPAAGSSGTLELPSTLSLYKSGALDEAAAYQSRDYNNFPLALAGPPPPPPPP HPHARIKLENPLDYGSA <sup>A</sup> AAAAAAQCRYGDLASLHGAGAAGPGSGSPSAAAS SS <sup>A</sup> HTLFTAEEGQLYGPC

### 2.1 Sample Expression

We need to add the cell line, plasmid insertion conditions, expression conditions, isolation, up to SEC purification.

### 2.2 Sample Purification

The sample was purified with an AKTA pure 25 FPLC. Size exclusion chromatography was carried out at room temperature using a Superdex 75 Increase 10/300 GL to isolate monomeric species of our expressed peptide. A minimal buffer containing 0.1 M NaP, 10%  $D_2O$  in water by volume at a pH of 7.4. [Much to be added and checked here.](#) The resulting samples contained the necessary solvent environment, and EPI-001 and peptide concentration to perform NMR and CD measurements.

### 2.3 NMR experiments

All data collection was performed on a 700 MHz Bruker Ascend 700 spectrometer with a TCI (1H,13C,15N, 2H) cryoprobe. Samples were cooled to 283K before collection. Samples were loaded into 5mm shigemi NMR tubes to maximize signal and minimize required sample volume.

## 3 Results

[Need to add the obvious text, must include the figures for CS perturbations for  \$\alpha\$ -helical content etc.](#)

## 4 Discussion

## 5 Conclusion

From the NMR chemical shifts and there perturbations insight into the physiochemical influence of EPI-001 on the Tau-5 domain of Human Androgen Receptor-1. The changes to the conformational sampling of the Tau-5 domain are assessed via the NMR chemical shift perturbations. From the CS perturbations we conclude that EPI-001 changes the helical propensity of two regions, R2 and R3. The helicity sampling is

increased for R2, while it is diminished in R3, albeit the CS perturbations of R3 are less than those observed in R2. Thus EPI-001, influences helical propensity shifting sampling of helical content, diminishing structural organization.