Summary and Conclusion:

Nuclear receptors like PPARα and PPARγ play a key role in adipocyte differentiation and insulin sensitivity. It has been postulated that nuclear receptors (NRs) regulate transcription via interactions with chromatin and the basal transcription machinery at the promoters of genes. Coregulators (coactivators or corepressors) are important in mediating these interactions and thereby modulating positive or negative receptor activity. The interaction between NRs and its coregulators depends upon presence or absence of different ligands [1]. We used mammalian two-hybrid system to study this interaction. Plasmids were constructed to encode two hybrid proteins. One hybrid consisted of the DNA-binding domain of the yeast transcriptional activator protein GAL4 fused to the NRID of CoA or CoR; the other hybrid consisted of the NFκB activation domain fused to LBDs of NRs [2]. Interaction between the NRs and its coregulators lead to transcriptional activation of a reporter gene containing a binding site for GAL4. Various ligands were added and its effect on interaction between NRs and its coregulators was observed by measuring luciferase activity. This helped in studying the mechanism of interaction between nuclear receptors and its coregulators and also helped in studying potency of various target drugs.