

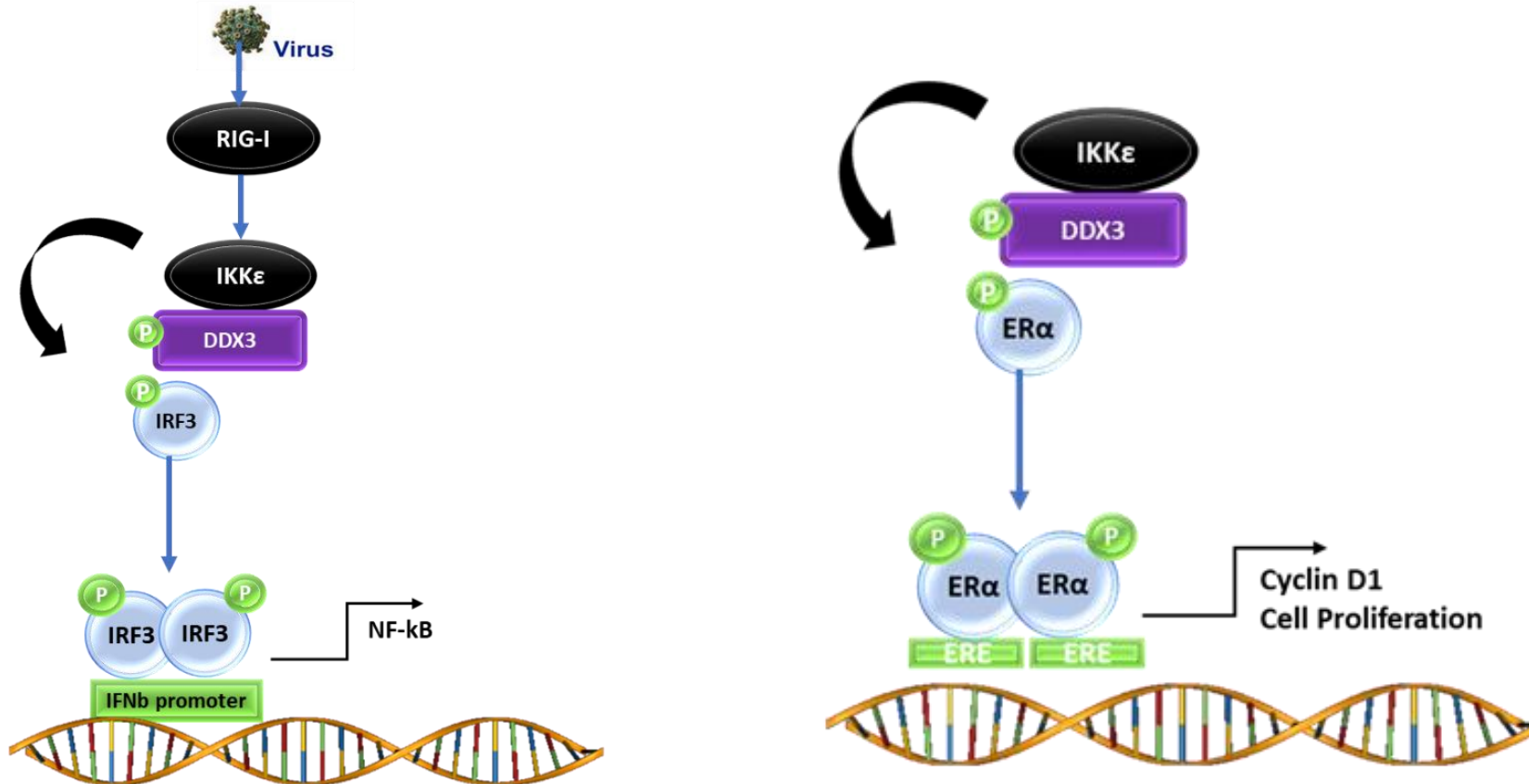
# DDX3X functionally and physically interacts with Estrogen Receptor-alpha



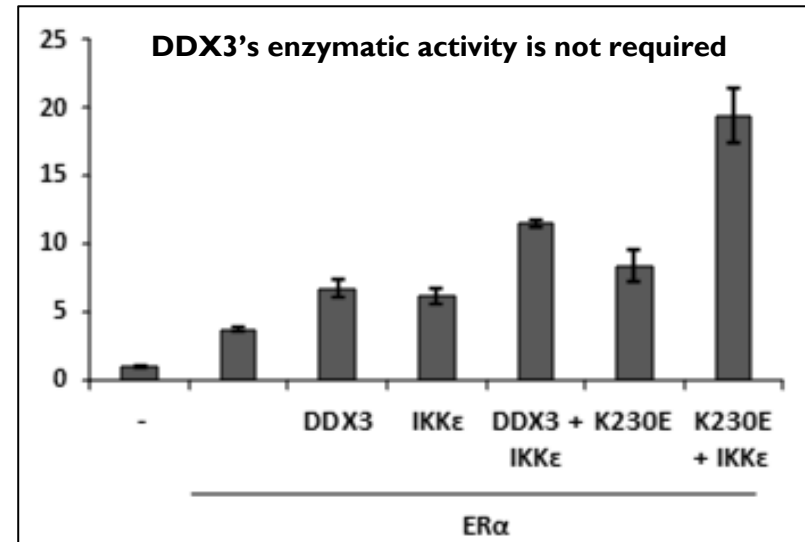
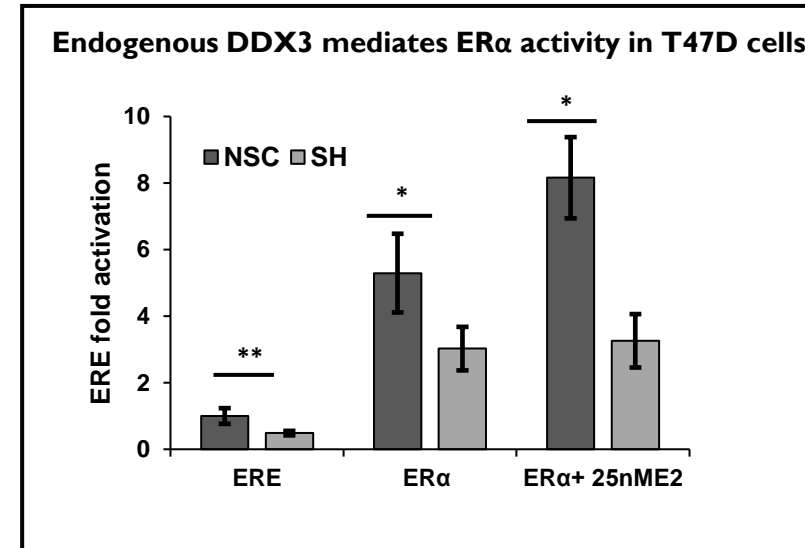
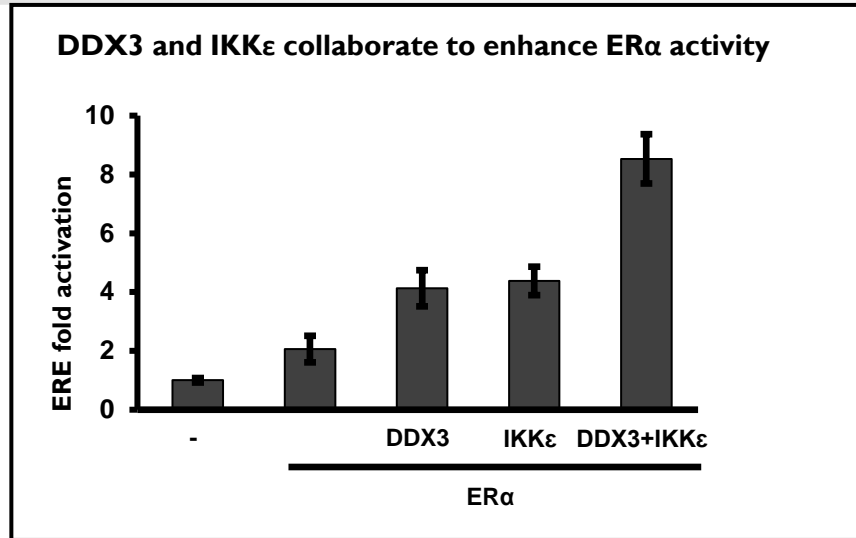
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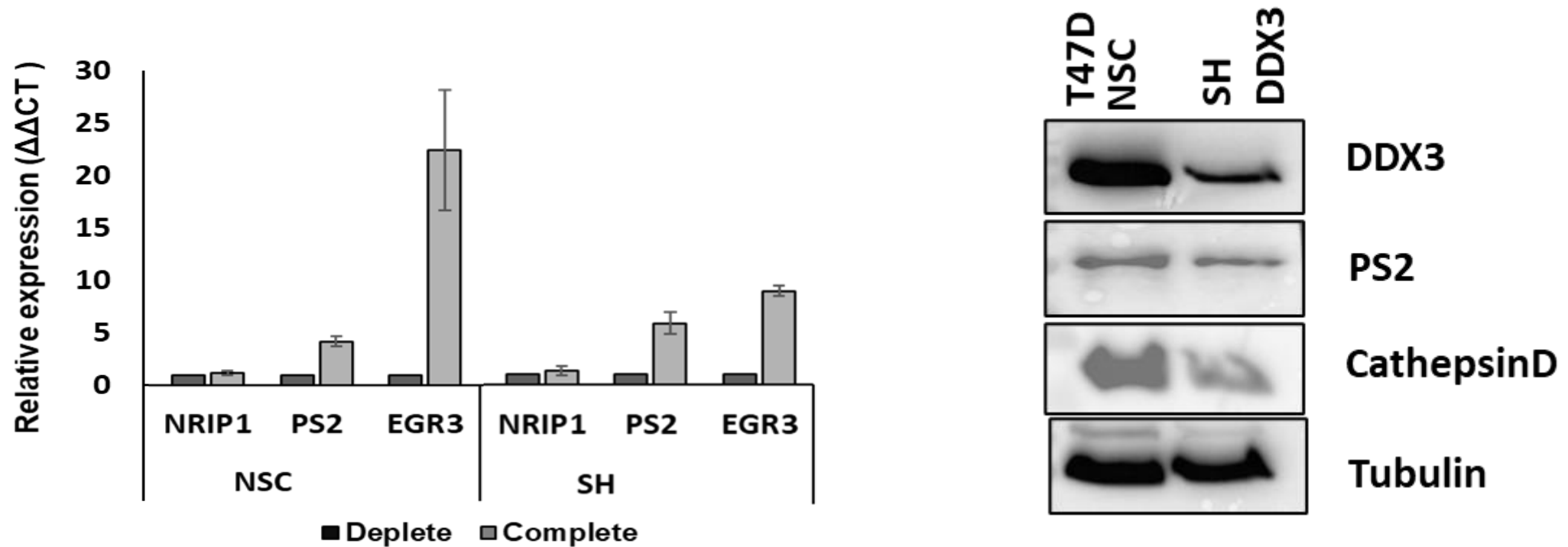


# DDX3X and IKK $\epsilon$ jointly enhance ER $\alpha$ -dependent transcriptional activity



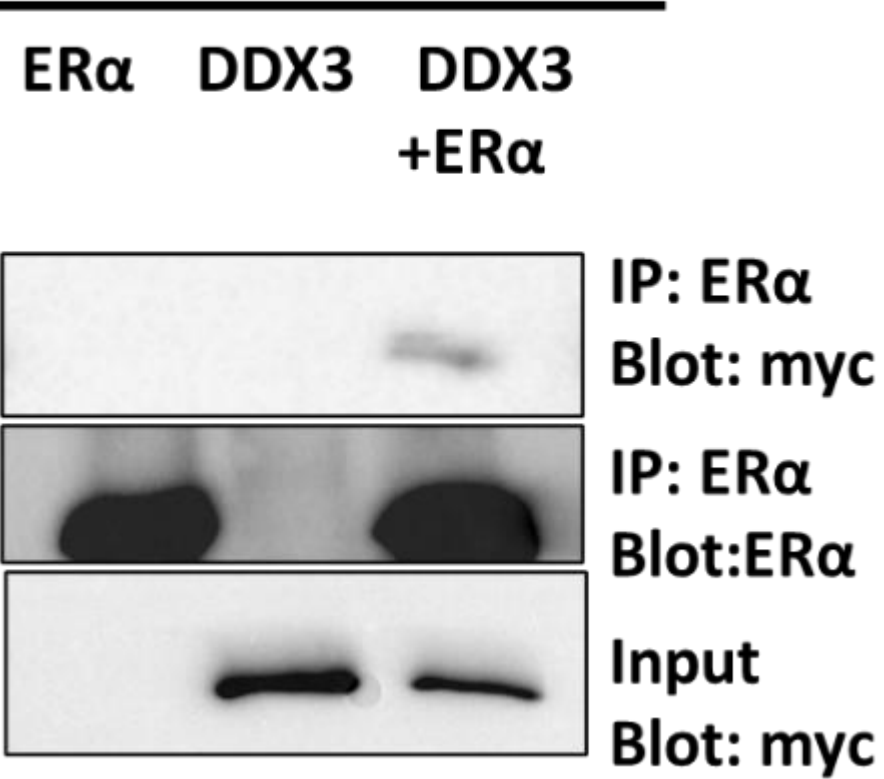
*K230E mutant of DDX3X has no RNA unwinding or ATPase activity.*

# DDX3X knockdown leads to reduced expression of ER $\alpha$ target genes

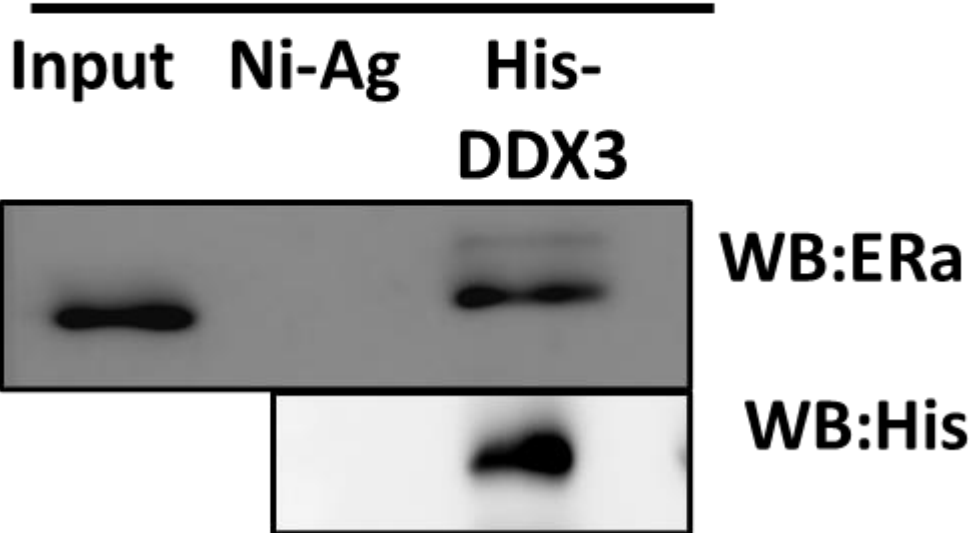


# DDX3X physically interacts with ER $\alpha$

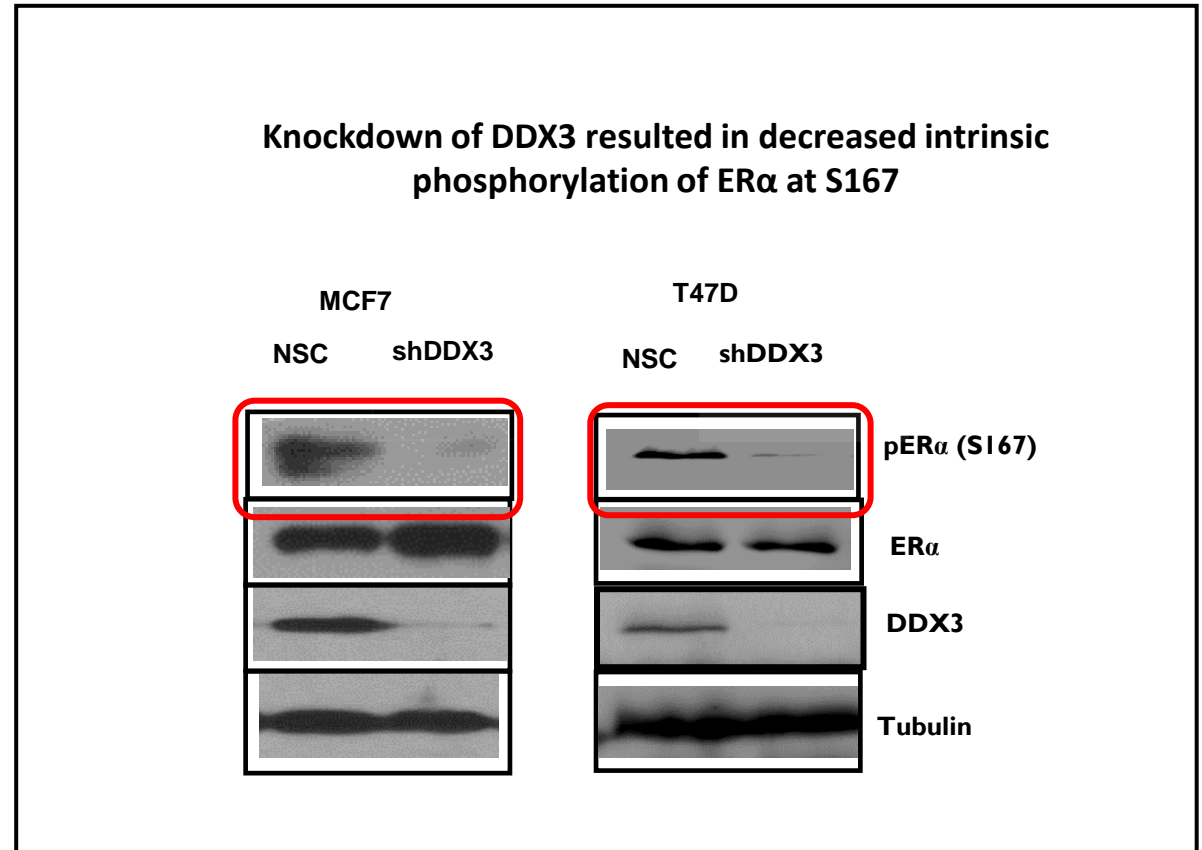
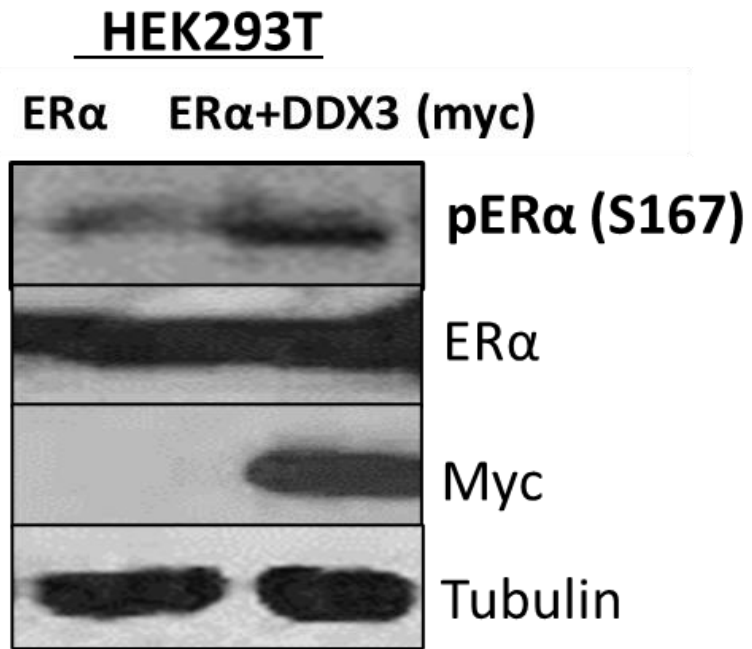
## IP:ER $\alpha$



## His pulldown



# DDX3X facilitates ER $\alpha$ phosphorylation at S167





## Summary and Conclusions

- DDX3 physically interacts with ER $\alpha$  and enhances its phosphorylation at S167.
- DDX3 enhances ER $\alpha$  transcriptional activity and target gene expression.
- Knockdown of DDX3 reduces cell proliferation and colony formation in MCF7 and T47D breast cancer cell lines.
- The effect on ER $\alpha$  is independent of DDX3's enzymatic activity and would therefore not be affected by DDX3 inhibitors that are currently being explored for therapeutic use.