

DLX1 protein

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In news- Recently, researchers at the Indian Institute of Technology (IIT), Kanpur, have discovered a particular gene (DLX1).

About DLX1 protein-

- The DLX1 plays an **important role in the development of jaws, skeleton, and interneurons in the brain.**
- It has an important role to play in the **growth and development of prostate cancer.**
- **The DLX1 protein is found at elevated levels in prostate cancer patients,** the reason why the DLX1 protein has been used as a urine-based biomarker.
- Homeobox protein DLX-1 is a protein that in humans is encoded by the DLX1 gene.
- Now the team of researchers from IIT Kanpur has found that the **DLX1 protein, which is expressed at higher levels in the prostate cancer cells, has a huge role in the growth and development of the tumour and the spread of the cancer** to other organs in the body (metastasis).
- Using small molecules as inhibitors, the **researchers have shown in mice a new therapeutic strategy to treat people with DLX1-positive prostate cancer.**

Key findings related to prostate cancer & DLX1 protein-

- **Androgen receptor is responsible for promoting the development of prostate cancer.**
- Also, **about 50% of prostate cancer harbors an aberrant gene which is a product of two genes** (TMPRSS2 and ERG) being fused together and results in production of higher levels of ERG protein.
- About **96% of TMPRSS2-ERG fusion-positive prostate cancer patients show high levels of DLX1 protein** as well.
- In concert with this, about **70% of the patients with**

high androgen receptor signaling also have elevated DLX1 protein levels.

- The researchers have further shown that both androgen receptor and fusion gene product, ERG, are responsible for increased levels of DLX1 in prostate cancer cells.