A Novel Method of Treating Cancer by Targeting EGFR Ligand Amphiregulin (Yeda)

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Yosef Yarden, Biology, Biological Regulation

Summary

A novel method for treating ovarian cancer by intercepting the EGFR ligand amphiregulin, when elevated expression levels are found in a patient. Ovarian cancer represents a relatively common type of cancer that affects women. However, the primary therapeutic option for ovarian cancer has remained the same since the 1970's, involving systemic chemotherapy treatment, and surgery. The problem of limited treatment options is further exacerbated due to the high proportion of patients who relapse following chemotherapy. The group of Prof. Yosef Yarden at the Weizmann Institute of Science (WIS) has discovered that amphiregulin (AREG) levels are elevated in the body fluids of a high percentage of ovarian cancer patient samples they tested. Prof. Yarden's group has found that by intercepting AREG in combination with chemotherapy, they were able to inhibit the growth of ovarian tumors.

Applications

Inhibiting growth of ovarian cancer. Possible treatment for other types of cancer. Using AREG as a possible theranostic for ovarian cancer.

Advantages

Innovative Target - Intercepting the EGF-ligand AREG. **Flexible** - Anti-AREG mAbs could be used alone or in combination with current chemotherapy treatments for different malignancies.

Technology's Essence

Prof. Yosef Yarden and his group have found that the EGFR ligand, Amphiregulin (AREG) was elevated in the bodily fluids of 80% of cancer patient samples tested. These results were further supported by in vitro work with varying cancer cell lines, again showing elevated AREG concentrations in their media. The Yarden group then generated an anti-AREG antibody, and performed experiments in vivo using mouse models xenografted with ovarian cancer cells. The results show that co-administering the anti-AREG antibody re-sensitized the tumors to standard chemotherapy treatments. This emphasizes the value of AREG not only as an anti-cancer target but also as a possible diagnostic marker.

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