Androgen Receptor Variants as Predictive Biomarker of Taxane Sensitivity in Prostate Cancer Patients

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Technology description

This invention provides a biomarker and methods for predicting clinical efficacy of taxane chemotherapy in prostate cancer patients and a device for detecting the biomarker in a test sample. Androgen ablation therapy is the mainstay for prostate cancer treatment. However, many patients progress to castration resistant prostate cancer (CRPC). Recent studies show that the presence of AR splice variants is common in CRPC and associates with resistance to current androgen deprivation therapies. AR variants ARv567 and ARv7 appear to be the two most clinically prevalent splice variants. CRPC patients are commonly treated with taxanes. However, the impact of AR variant expression on taxane sensitivity and resistance has not been evaluated. Cornell researchers show that ARv567, but not ARv7, binds microtubules and the dynein motor protein and that taxane treatment inhibits the nuclear accumulation and activity of ARv567 but is ineffective in the case of ARv7. Expression of ARv567 correlates with taxane sensitivityin vivowhile expression of Arv7 is associated with drug resistancein vivo.
These data suggest that AR variant expression can serve as predictive biomarker of clinical response to taxane chemotherapy in prostate cancer. This will help clinicians tailor treatment in CRPC patients.

Additional Information

Androgen receptor splice variants determine taxane sensitivity in prostate cancer. Cancer Res, 2014, 74, 2270-82 .

Application area

A biomarker for predicting whether a prostate cancer patient can benefit from taxane treatment

Advantages

A novel biomarker for determining clinical efficacy of taxane chemotherapy
The test sample can be a bodily fluid sample or a tissue sample from a patient, such as circulating tumor cells, prostate tissue, blood, serum, ascites fluid, urine and semen.

Institution

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