COMBINED USE OF A SERCA INHIBITOR AND A CALMODULIN ANTAGONIST

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BACKGROUND
SEC62 is a new candidate oncogene showing a significant overexpression and elevated protein content in cancer of the lung and prostate. Elevated Sec62 protein content has been shown to be functionally linked to increased cell migration capability and to reduced sensitivity to Thapsigargin, whose analogs are used in the context of cancer treatment. Both, cell migration and Thapsigargin induced ER stress are crucially regulated by the cytosolic and ER luminal calcium concentration.

PROBLEM
There is the need of a pharmaceutical treatment that is able to treat SEC62 overexpressing tumor 1) by inhibiting the cell migration mechanism favored by the overproduction of Sec62 protein and 2) by counteracting the effect that the Sec62 protein overproduction has in reducing the effect of SERCA inhibitors like Thapsigargin as used in the treatment of tumor.

SOLUTION
Scientists of Saarland University found that the administration of a Calmodulin antagonist such as Trifluoperazine in combination with a SERCA inhibitor like Thapsigargin is surprisingly useful in the treatment of tumors, which are in particular characterized by the overexpression of the SEC62 gene/Sec62 protein. They showed that the combined use of a SERCA inhibitor and a Calmodulin antagonist 1) acts on the inhibition of cell migration and 2) counteracts the reduced efficiency of SERCA inhibitor observed in the treatment of tumors overexpressing SEC62 gene /protein, thereby providing an effective treatment of these tumors. Notably, the Calmodulin antagonist Trifluoperazine is an approved antipsychotic and antiemetic drug.
ADVANTAGES

- The combined use of a SERCA inhibitor and a Calmodulin antagonist outmatches the sole treatment with SERCA-inhibitors such as Thapsigargin analogues
- enhances the sensitivity of the tumor for treatment with SERCA-inhibitors in Sec62 overproducing tumors can reduce SERCA-inhibitor administration and thereby adverse effects
- Detection of SEC62 overexpression could guide personalized therapeutic strategies

SCOPE OF APPLICATION

Treatment of tumors with SEC62 overexpression as found in non small cell lung carcinoma (97%), lung adenocarcinoma (86%) and prostate carcinoma (50%).

SERVICE
We are looking for partners for further development and commercialisation of the invention.

PUBLICATIONS & LINKS