

Blocking a protein to prevent injuries caused by radiation therapy

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Mahsa Fallah in lab. Credit: Johan Günséus

It is possible to prevent certain injuries that can occur in radiation therapy against cancer. By blocking the activity of a plasma protein during and immediately after radiation, the patient can be protected

against injury. This is shown in a new doctoral thesis at Umeå University, Sweden.

"Injury in [radiation therapy](#) can be painful and seriously impair the patient's quality of life. Therefore, it is important to find ways to treat or, even better, prevent the damage," says Mahsa Fallah, Ph.D. student at the Department of Medical Biochemistry and Biophysics at Umeå University.

The most common skin effect in radiation therapy against cancer is skin redness, erythema, which affects nine out of ten radiation-treated patients. The rancidity can develop into skin flaking, desquamation. Other areas where radiation effects occur are the gastrointestinal tract and bone marrow.

Today, wounds caused by radiation are being treated locally with dressing, antibiotics, cortisone, or in severe cases through skin transplantation.

In her doctoral thesis, Mahsa Falla shows the importance of the plasma protein plasminogen for the development of inflammation and damage after radiation. In studies mice that lack plasminogen have been shown to be resistant to radiation damage. Even in [mice](#) that had plasminogen, the damage could greatly be reduced by treating the patient with a substance, tranexamic acid, which inhibits the activation of plasminogen.

"Overall, studies indicate that it is advisable to prevent radiation damage to the skin by treating the cancer patient with tranexamic acid. It is worth researching if the same strategy could also be used to protect [internal organs](#) from [radiation damage](#)," says Mahsa Fallah.

Provided by Umea University

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