Sp transcription factors cause cancer cell growth

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This story has gone viral on Facebook and has received a lot of attention on Twitter. Yes, actually I wrote it but it would be a waste of time if you have not already seen this feature. It just â€œclicksâ€ and takes you to an amazing video about how Sp transcription factors cause cancer cell growth in mouse tissue.

Two serious things:

First, thereâ€™s no human therapy for this cancer at all.

Second, thereâ€™s no human therapy that can stop runaway cell growth. You need to clear the cancer on your own, hopefully while also saving some of your organs, but I donâ€™t know if youâ€™ll get that chance.

What they did was to block the ability of Sp family transcription factors to modulate cell growth. In other words, they blocked a cell growth factor program in the cancer cells. Turns out Sp transcription factors prevent the loss of a protein called B-cell lymphocyte promoter (BCLP) which promotes the growth of lung and bone cancers. In mouse cancer cell lines they show the action. The cancerous cells quickly regress (which is sort of the next thing to regression). If this was tested in humans, it might prevent tumor growth, slow or stop tumor growth, and perhaps even completely stop it, though as we have learned in other cases, the mechanism is complex.

You might have heard the cliche that â€œevery tumor is different.â€ That is true. But each cancer is an expression of the regulation of a cell growth factor or protein. If a cell promotes growth the Sp transcription factor comes along and â€œheats it upâ€ so it will not grow fast. So blocking the ability of Sp to influence cell growth in cancer cells should curtail the growth of tumor cells as it has in mouse models. This shows how drugs and vaccines can work if they can recognize a specific protein or combination of proteins for tumor control.

[I note that this story is about the intervention of targeting specificity protein transcription factors into the expression of a protein that has been shown to suppress many cancers, a biological fact about cancer that affects cancer treatment.]

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