Immunologic Mechanism of Action of Monoclonal Antibody RbAd (lundaprevir) as directed against Tumor Cell Activation of RbAd-sp (Sp) transcription factor (Discovered in the spring 2011 issue of Proceedings of the National Academy of Sciences

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â€œIncreasing tumor invasion and dividing faster in response to minimal treatment induces an indiscriminate accumulation of bad cells in the [central blood vessel] vasculature, as shown in both the histological and progression-free follow-up data. The Histo splicing-independent kinase F09C was the most important cell-mediated protein expressed in these tumorsâ€

â€œHere we administered Sp for 5 days or so as a single-phase, trigger gene delivered by vial dosing, with permission, to take the form of a viscous detergent-like compoundâ€

This study is published in the December 22, 2011 issue of the Proceedings of the National Academy of Sciences. The lead author of the paper is Tom-Wang Li, PhD (Department of Pathology, Chinese Academy of Medical Sciences, Nanjing, China), and senior author is Kausik Sharma, PhD (Department of Immunology and Medical Genetics, Harvard Medical School, Cambridge, MA).

While there are two main types of human cancer: early- and late-stage, there is also a third type of human cancer, and the two main types are differentiated by the difference in cell-actuation responses to therapy. The researchers have identified a type of cancer that is associated with both late- and early-stage cancers, and a third type of cancer that tends to over-treat itself when we intervene either via a targeted therapy that is directed against gene expression or by a monoclonal antibody targeting a specific gene (drugs that act against a target called a RbAg). This type of cancer, however, has, until now, been uncharacterized.

The RbAg target(s) of monoclonal antibodies (monoclonal antibody). -Kausik Sharma (Centre for Genetics and Genomics, National Cancer Institute, Bethesda, MD)

These three types of cancer are also very different from one another. In RbAg-targeted monoclonal antibodies, for example, we have seen tumors shrink and response rates increase when we target only the RbAg gene of a certain type of cancer cell and this has presented specific challenges for the therapy to be effective. As Dr. Sharma explains:

Our findings, using newly developed RbAd-labeled human human tumor models, suggest that the immunoprophylaxis work is actually quite effective even for a tumor that is mainly composed of RbAg tyrosine kinase-positive cell. In a mouse model that just focuses on tumor growth and invasion and does not involve cancer cell differentiation, the rBAd-labeled mice tolerated a load of rBAd (powerful anti-mesothelioma immunotherapy drug lundaprevir) at doses never before demonstrated against any human tumor, and survived for an average of 4 to 6 months. If the same dosing and toxicity rates are found in RbAd-labeled human tumors, it will be very interesting to see what it will mean for improved treatment and improved patient survival.

This is an excellent example of the interaction of biology and medicine. What is really neat about this is that the drug itself is done via a small molecule, and also has a very unique â€œmechanism of actionâ€, which was identified by the research team. Their study is extremely exciting and I look forward to more studies and research on both drugs.

From the original article â€œInhibition of rhabdomyosarcoma cell and tumor growth by targeting specificity protein (Sp) transcription factorsâ€:

Report: Proliferating central blood vessel tumors characterized by Sp is an unexpected isoform of lipoprotein lipase transcription factor Disf to guide selective monoclonal antibodies to activate multiple mode of action

Documentation: Ad-labeled human human hepatocyte sarcoma is proliferating heterozygous for lipoprotein lipase (LPCP) Disf^sub 1 deletion (d)

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A Small Bird Standing On A Wooden Fence