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Universiteit Leiden



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## Stellingen

Behorende bij het proefschrift

### Carcinogenicity of insulin analogues

1. Insulin glargine has a strong intrinsic mitogenic potential (*this thesis*).
2. Based on the gene expression profiles the mitogenic potential of a growth factor can be predicted accurately (*this thesis*).
3. Growth factors with an increased affinity towards the IGF1R decrease the mammary gland tumor latency time in the p53<sup>R270H/+</sup>WAPCre mouse model (*this thesis*).
4. Chronic X10 and IGF1 treatment induces tumors with an increased and sustained proliferative and invasive transcriptomic profile (*this thesis*).
5. Diabetic patients who are at high risk of developing cancer should reconsider their glargine prescription (*based on Sciacca et al., J Cell Physiol. 2014*).
6. The use of glargine has advantages over other long acting insulin analogues, such as a lower risk of nocturnal hypoglycemia and a more constant absorption (*based on Mannucci, Diabetes Care, 2010*).
7. While society expects due diligence in the detection of carcinogenic side-effects, claims of harm not backed by adequate evidence can set off an unwarranted alarm and seriously interfere with good medical practice (based on Pocock, Lancet, 2009).
8. Only if the pharmacological dose of insulin analogues induces a stronger proliferative effect compared to regular insulin should we be worried.
9. *In vitro* studies investigating the mitogenic potential of M1 would shed light on the carcinogenic potential of glargine.
10. Keeping up with scientific literature is sometimes like watching a soap.
11. *In vivo* experiments are still pivotal to reliably bridge the translational gap between *in vitro* experiments and the clinic.
12. Never start an experiment without a clear prospect of a reward. This would be like brewing beer or keeping bees without the prospect of drinking the beer or eating the honey.

Bas ter Braak, Leiden, 18 June 2015