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Impact investment future for Nanotechnology

Statement of the Problem: The real world and the investment world are at a crossroads in terms of how it will need to function sustainably in the future. Nanotechnology has shown through research and more recently in industry that it has the tools to reshape the future of how we live and shape our environment. There have been billions invested in Nano research, but the commercialisation of the research has recently started to accelerate. The investment world is also going through a massive disruptive innovation phase which will require new models for investment using the valuable IP that has been created from Nano scale research.

Methodology & Theoretical Orientation: Recently we have seen quantitative and qualitative evidence that the disruptive nature of some Nano enabled technologies can reshape whole industries and our way of life. Therefore, the traditional VC model or IPO route has often stifled great innovation as it requires the technology to have the fully capitalised funding to deliver Nano enabled technologies into healthcare, energy, transport, food production, commodities, infrastructure and our environment. These investments will be larger but more sustainable. This brings many benefits to impact investing in nanotechnology including better returns for shareholders as well as making the world safer and sustainable. By 2050 70% of the world's population will live in urban environments known as smart cities and this will only function if we create Nano enabled smart cities where healthcare for instance is decentralised with early intervention and precision medicine being the bedrock of our health systems for it to be affordable. The same applies to energy, transport, food production and all the other key functions that sustain our economies and life as we know it.

Conclusion & Significance: Smart Nano innovation must be matched with smart investment and it is vital to the world economy and sustainability of life on earth for future centuries.

Biography

Paul Stannard has worked internationally in the US, Europe, Middle East and Asia and spoke at Davos 2019 about the next industrial revolution (Industry 4.0) and the impact on Smart Cities and how Nanoscale technologies will change the world in almost every area of life including sustainable healthcare, energy, food production, transport, infrastructure, AI and telecoms and communications. Chairman of The World Nano Foundation for the commercialisation of nanotechnology. Chairman of Trustees for World Science Aid and Chairman and Founder of Nano Media Group who are launching an investment funding programme where Nanotechnology research and IP can be potentially used as a tangible asset for funding and investment. He is also Chairman of Enabling Tech Capital based in London. He is a passionate advocate for Nanomedicine, Nano materials as well as other Nano enabled technologies which create significant global value and impact as well as sustainability for everyone.

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Somatotrophic axis genes' SNPs and milk production in Assaf ewes

Growth Hormone (GH) has long been known to indirectly support the synthesis and secretion of milk and milk components in lactating animals by increasing blood flow and nutrient availability to the mammary gland1 or through stimulation of IGF¬I secretion by the liver and by stromal cells within the mammary gland2. These physiological stimuli increase epithelial cell proliferation or secretory activity in the lactating mammary gland, indicating the involvement of signalling pathways regulating cell turnover and renewal 3,4, RNA transcription at postranscriptional level of miRNAs5, and protein synthesis6. Molecular markers in the genes from the principal pathways triggered by GH has been reported to control milk production and milk protein genes expression in sheep7,8. Animal selection based on such markers offers an enormous potential to improve sheep milk productivity. Thus, the objective of this study is to uncover polymorphism in ovine somatotrophic axis associated with high yielding Assaf dairy ewes. Eighteen SNPs in GH, GHR, PRL, PRLR, IGF1, IGF1R and STAT5B genes have been genotyped by SNapShot analysis in 450 Assaf dairy ewes from Fertiland flock divided into two groups: high (H – total milk yield higher than 500 L/lactation) or medium yielding ewes (M – average total milk yield of 300±100 L/lactation. Data collected for ten years regarding milk yield adjusted to 150 lactation days, total milk yield and lactation duration was analysed for individual SNPs with MAF>0.05 using the PROC MIXED procedure, considering the effect of the genotypes, lactation number, type of lambing, and production group. The analysed SNPs showed to be highly polymorphic, and associations has been stabilised with milk yield traits. The results from this study provided new insights into allelic frequencies of the analysed SNPs, and their effects on milk production traits in Assaf dairy ewes. Its future use in selection programs could contribute to increase economic sustainability of sheep's milk farms.

Biography

Marques has a PhD degree in Biology, specialty of Population Biology. She has her expertise in animal production and molecular biology techniques applied to genetic polymorphism detection in animals. Her current research interest is the detection of genetic polymorphism in the somatotrophic axis and milk protein genes in sheep, and to disclose its' possible correlations with milk traits in dairy sheep breeds.

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