

3 June 2022

J Bruning

via FYI.org.nz

email: fyi-request-19298-9cd957ac@requests.fyi.org.nz

Dear J Bruning,

Official Information Act Request – IP protocols and remuneration; and financial return from biotech investment

I refer to your request dated 9 May 2022 for the following:

1. Intellectual property. Please supply the protocol for financial return on intellectual property. This might include through sale of the IP or as leasing and royalty payments.

a. Please include information on how inventors are remunerated through sales or IP royalties

b. Please include information on how public sector are remunerated through sales or IP royalties. This might include financial return to this institution or to the MBIE.

c. Please provide an example of a product that is New Zealand developed to illustrate how financial return comes back to the New Zealand public.

2. Modern biotech/gene technology (which includes editing that is based and not based on Crispr) - returns on investment.

a. Please provide a list of AgResearch reports produced from 2015 onwards detailing the investment in biotechnology and the financial outcome. This includes public reports and reports directly to MBIE, MPI and Cabinet.

We have decided to grant your request. Please see below our responses to the individual items in your request:

1. Intellectual property. Please supply the protocol for financial return on intellectual property. This might include through sale of the IP or as leasing and royalty payments.

Please see attached AgResearch's Intellectual Property Policy, which details AgResearch's approach to management and commercialisation of IP. This includes discussion about how AgResearch obtains financial return on IP.

a. Please include information on how inventors are remunerated through sales or IP royalties

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AgResearch's Intellectual Property Policy currently provides that all IP rights developed by employees, as a result of their engagement by AgResearch, will be owned by AgResearch. Employees who are inventors are therefore generally remunerated through their salaries. There was a previous Royalty Incentive Scheme Policy with respect to IP commercialisation which was discontinued in 2012 on the basis that it no longer aligned with AgResearch's desired culture and performance indicators. There are a small number of employee Royalty Incentive Scheme payments that continue to be made for inventions generated prior to that policy being discontinued.

b. Please include information on how public sector are remunerated through sales or IP royalties. This might include financial return to this institution or to the MBIE.

Revenue generated by AgResearch from commercialisation of intellectual property, by way of sale of intellectual property or licence royalties, is retained within AgResearch. This revenue is reinvested in AgResearch, to support the science, infrastructure and operations of the company.

Revenue from intellectual property sales or licence royalties is not shared with MBIE or any other public sector agency.

c. Please provide an example of a product that is New Zealand developed to illustrate how financial return comes back to the New Zealand public.

As above, direct financial return received by AgResearch from intellectual property sales and licence royalties is retained in AgResearch. The attached paper talks about some examples of forage technologies bred and discovered by AgResearch. Forage technologies are typically licenced by AgResearch's subsidiary, Grasslanz Technology Limited, to seed companies who then produce the commercial seed product for sale to the end user farmer. The paper is about the uptake of those technologies based on volume of sales.

2. Modern biotech/gene technology (which includes editing that is based and not based on Crispr) - returns on investment.

a. Please provide a list of AgResearch reports produced from 2015 onwards detailing the investment in biotechnology and the financial outcome. This includes public reports and reports directly to MBIE, MPI and Cabinet.

From your request, we have worked on the basis that you are only seeking that we identify reports which are publicly available or have been provided to government. We have not extended our enquiries to consider reports pertaining to any privately funded projects. If we have not correctly understood your request, please advise. Our response is based on what we have been able to identify in AgResearch's records as within the scope of your request using reasonable endeavours to do so.

AgResearch doesn't produce summary reports specifically on the topic of its work in biotechnology. Rather, the information that we believe you are seeking is scattered in a number of different reports.

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AgResearch's annual reports highlight particular projects that our scientists work on, which in some years will include projects in the biotechnology field. These will not include specific financial elements for those projects however. AgResearch's annual reports are available from <https://www.agresearch.co.nz/about/our-organisation/publications/annual-report/>.

AgResearch also produces a quarterly report for MBIE. These reports are of a general nature, highlighting key work and changes within AgResearch as a whole, both in terms of its science work and the wider functions that support science. These reports include updates on specific science programmes, which from time-to-time includes biotechnology programmes. Specific financial details pertaining to these programmes are not included in the reports – these are of a more general nature commenting on progress with these programmes.

AgResearch is required to produce an annual report to MBIE detailing AgResearch's investment of funding provided through MBIE's Strategic Science Investment Fund. The report includes funding amounts allocated to specific projects, and broad descriptions of those projects. Some of the projects include projects within the biotechnology field. The reports that include this information are:

- C10X1702-CR-1 (for FY18)
- C10X1702-CR-3 (for FY19)
- C10X1702-CR-4 (for FY20)
- C10X1702-CR-6 (for FY21)

We believe we are likely to hold some additional reports completed in relation to specific biotechnology projects funded through additional MBIE managed funding channels (such as the Endeavour Fund). We are in the process of preparing a list of these and will provide this to you when it is available.

We thought it may be of interest to provide a list of scholarly publications from 2015 onwards which have involved AgResearch staff as authors, pertaining to work in the biotechnology field. Please see the Schedule attached. Should these be of interest, you should be able to obtain copies online from the publishers.

You have the right to seek an investigation and review by the Ombudsman of this decision. Information about how to make a complaint is available at www.ombudsman.parliament.nz or freephone 0800 802 602.

If you wish to discuss this decision with us, please feel free to contact me at 03 321 8800.

Yours faithfully,



Nick Barraclough
Team Leader - Legal

SCHEDULE

- Altermann, E., & Hickey, W. J. (2020). Grand Challenges in Microbiotechnology: Through the Prism of Microbiotechnology. *Frontiers in Microbiology*, 11.
- Altermann, E., Reilly, K., Young, W., Ronimus, R. S., & Muetzel, S. (2022). Tailored Nanoparticles With the Potential to Reduce Ruminant Methane Emissions. *Frontiers in Microbiology*, 13.
- Baena-Aristizabal, C. M., Foxwell, M., Wright, D., & Villamizar-Rivero, L. (2019). Microencapsulation of *Rhizobium leguminosarum* bv. trifolii with guar gum: preliminary approach using spray drying. *Journal of Biotechnology*, 302, 32-41.
- Barrell, P. J., Latimer, J. M., Baldwin, S. J., Thompson, M. L., Jacobs, J. M. E., & Conner, A. J. (2017). Somatic cell selection for chlorsulfuron-resistant mutants in potato: identification of point mutations in the acetohydroxyacid synthase gene. *BMC Biotechnology*, 17(49).
- Beechey-Gradwell, Z., Kadam, S., Bryan, G., Cooney, L., Nelson, K., Richardson, K., . . . Roberts, N. (2022). *Lolium perenne* engineered for elevated leaf lipids exhibits greater energy density in field canopies under defoliation. *Field Crops Research*, 275.
- Benhal, P., Chase, J. G., Gaynor, P., Oback, B., & Wang, W. (2015). Multiple-cylindrical electrode system for rotational electric field generation in particle rotation applications. *International Journal of Advanced Robotic Systems*, 12.
- Carena, M. J. (2021). Germplasm enhancement and cultivar development: the need for sustainable breeding. *Crop Breeding and Applied Biotechnology*, 21(Special Edition).
- Conner, A. J., Searle, H., & Jacobs, J. M. E. (2019). Rejuvenation of chicory and lettuce plants following phase change in tissue culture. *BMC Biotechnology*, 19(65).
- D'Hondt, K., Kostic, T., McDowell, R., Eudes, F., Singh, B. K., Sarkar, S., . . . Sessitsch, A. (2021). Microbiome innovations for a sustainable future. *Nature Microbiology*, 6(2), 138-142.
- Fitzpatrick, S. E., Deb-Choudhury, S., Ranford, S., & Staiger, M. P. (2020). Novel protein-based bio-aerogels derived from canola seed meal. *Journal of Materials Science*, 55(11), 4848-4863.
- Frederick, J., Hennessy, F., Horn, U., De La Torre Cortés, P., Van Den Broek, M., Strych, U., . . . Brady, D. (2020). The complete genome sequence of the nitrile biocatalyst *Rhodococcus rhodochrous* ATCC BAA-870. *BMC Genomics*, 21(1).

- Gagic, D., Ciric, M., Wen, W. X., Ng, F., & Rakonjac, J. (2016). Exploring the secretomes of microbes and microbial communities using filamentous phage display. *Frontiers in Microbiology*, 7(APR).
- Guerrero, F. D., Bendele, K. G., Ghaffari, N., Guhlin, J., Gedye, K. R., Lawrence, K. E., . . . Tompkins, D. M. (2019). The Pacific Biosciences de novo assembled genome dataset from a parthenogenetic New Zealand wild population of the longhorned tick, *Haemaphysalis longicornis* Neumann, 1901. *Data in Brief*, 27.
- Hadi, J. B., G. (2021). Safety of alternative proteins: technological, environmental and regulatory aspects of cultured meat, plant-based meat, insect protein and single-cell protein. *Foods*, 10(6), 1226.
- Laible, G., Wei, J., & Wagner, S. (2015). Improving livestock for agriculture - technological progress from random transgenesis to precision genome editing heralds a new era. *Biotechnology Journal*, 10(1), 109-120.
- Li, J., Gu, H., Liu, Y., Wei, S., Hu, G., Wang, X., . . . Ban, L. (2021). RNA-seq reveals plant virus composition and diversity in alfalfa, thrips, and aphids in Beijing, China. *Archives of Virology*, 166(6), 1711-1722.
- Meier, S., Kay, J. K., Kuhn-Sherlock, B., Heise, A., Mitchell, M. D., Crookenden, M. A., . . . Roche, J. R. (2020). Effects of far-off and close-up transition cow feeding on uterine health, postpartum anestrus interval, and reproductive outcomes in pasture-based dairy cows. *Journal of Animal Science and Biotechnology*, 11(17).
- Meng, F., Li, H., Wang, X., Qin, G., Oback, B., & Shi, D. (2015). Optimized production of transgenic buffalo embryos and offspring by cytoplasmic zygote injection. *Journal of Animal Science and Biotechnology*, 6(44).
- Nayfach, S., Roux, S., Seshadri, R., Udway, D., Varghese, N., Schulz, F., . . . Consortium, I. M. D. (2021). Author Correction: A genomic catalog of Earth's microbiomes (Nature Biotechnology, (2021), 39, 4, (499-509), 10.1038/s41587-020-0718-6). *Nature Biotechnology*, 39(4), 521.
- O'Callaghan, M. (2016). Microbial inoculation of seed for improved crop performance: issues and opportunities. *Applied Microbiology and Biotechnology*, 100(13), 5729-5746.
- Pinel-Cabello, M., Jroundi, F., López-Fernández, M., Geffers, R., Jarek, M., Jauregui, R., . . . Merroun, M. L. (2021). Multisystem combined uranium resistance mechanisms and bioremediation potential of *Stenotrophomonas bentonitica* BII-R7: Transcriptomics and microscopic study. *Journal of Hazardous Materials*, 403.

- Rajan, S. S. S., & Upsdell, M. P. (2021) Environmentally friendly agronomically superior alternatives to chemically processed phosphate fertilizers: Phosphate rock/sulfur/Acidithiobacillus sp. combinations. In: *Vol. 167. Advances in Agronomy* (pp. 183-245): Academic Press Inc.
- Soni, A., Samuelsson, L. M., Loveday, S. M., & Gupta, T. B. (2021). Applications of novel processing technologies to enhance the safety and bioactivity of milk. *Comprehensive Reviews in Food Science and Food Safety*, 20(5), 4652-4677.
- Tizard, M., Hallerman, E., Fahrenkrug, S., Newell-McGloughlin, M., Gibson, J., de Loos, F., . . . Doran, T. (2016). Strategies to enable the adoption of animal biotechnology to sustainably improve global food safety and security. *Transgenic Research*, 25(5), 575-595.
- Wakelin, S., Young, S., Gerard, E., Mander, C., & O'Callaghan, M. (2017). Isolation of root-associated *Pseudomonas* and *Burkholderia* spp. with biocontrol and plant growth-promoting traits. *Biocontrol Science and Technology*, 27(1), 139-143.
- Woodfield, D. R., Roldan, M. B., Voisey, C. R., Cousins, G. R., & Caradus, J. R. (2019). Improving environmental benefits of white clover through condensed tannin expression. *Journal of New Zealand Grasslands*, 81, 195-202.
- Zachow, C., Berg, C., Müller, H., Monk, J., & Berg, G. (2016). Endemic plants harbour specific *Trichoderma* communities with an exceptional potential for biocontrol of phytopathogens. *Journal of Biotechnology*, 235, 162-170.
- Zhang, J., Wu, F., Yan, Q., John, U. P., Cao, M., Xu, P., . . . Wang, Y. (2020). The genome of *Cleistogenes songorica* provides a blueprint for functional dissection of dimorphic flower differentiation and drought adaptability. *Plant Biotechnology Journal*, 19(3), 532-547.