

Attention Elton Humphrey.

re: Legislative responses to recommendations of the Lockhart Review

Questions on notice from Senator Stephens.

1. Does the legislation as it currently stands allow you to undertake cell fusion techniques or as it is proposed by Senator Patterson's Bill?

Response.

It is our understanding that the present legislation does not prevent us undertaking in vitro cell fusion studies involving embryonic stem cells and somatic cells. The proposed Patterson bill would also allow such research without regulation provided that human eggs were not used.

Such research is being undertaken to try to produce pluripotent (embryonic stem cell like) stem cells without using human eggs and without producing embryos from which embryonic stem cells are presently derived.

Proof of principle has been published by several research groups using animal cells
See:

* Tada T. Nuclear reprogramming: an overview. *Methods Mol Biol.* 2006, 348: 227-236.

A recent paper using mice:

* Tada et al. 2001, *Current Biology* 11: 1553-1558 (copy attached)

Suggests that ES Cells have the capacity to reset certain aspects of the epigenotype of somatic cells to those of ES Cells.

Although further research needs to be, and is being undertaken, to investigate whether this is possible using human somatic cells, these results are encouraging.

2. In relation to Point 6, I am still not clear. Are you suggesting that the Patterson Bill needs to be amended to allow this research?

Response:

Point 6 of the MISCL submission refers to parthenogenic activation of unfertilized eggs.

It is our understanding that this research which might lead to the formation of pluripotent stem cells without fertilization of eggs would be permitted under the proposed Patterson Bill without amendment.

Lochart Recommendation 25 proposes that parthenogenic activation should be permitted. Proposed Clause 22, Division 2 of the Patterson Bill would, in our understanding, allow the creation of a human embryo by parthenogenic activation if authorised by a licence. Clause 9 & 14 would ban such an embryo being implanted or allowed to develop for more than 14 days.

Research in this area presently undertaken using rabbit eggs is presented in:

* Liu et al. 2005, *Mol Reprod Dev*, 72: 48-53 (copy attached)

Although further research needs to be, and is being undertaken, to investigate whether this is possible using human somatic cells, these results are encouraging.

Please do not hesitate to contact me if you require further information.

Yours sincerely,

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