

# Policy environments may shape international progress of human embryonic stem cell research

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Biomedical research may be substantially hampered by drawn out debates, conflicting legislation and restrictive policies. A new analysis, published by Cell Press in the June issue of *Cell Stem Cell*, investigates the influence of policy environments on the progression of research related to human embryonic stem cells (hESC) and offers new insight into the international development of this often ethically controversial field.

“There is no doubt that hESC science is governed by a complicated patchwork of policies that vary both between and within countries,” says study author Dr. Aaron D. Levine from the School of Public Policy at the Georgia Institute of Technology. To assess how this environment may have influenced the development of the field, Dr. Levine analyzed the relative performance of countries with respect to publication of peer-reviewed hESC-related research articles. Each paper in the evaluation was assigned a county of origin according to the address of the corresponding author of the study.

The analysis sought to identify significant “over-performers” and “under-performers” by systematically comparing each country’s cumulative share of hESC-related research with its share of RNA interference (RNAi)-related research and its average cumulative share of research related to a broad range of biomedical research topics over the same time period. RNAi research was chosen as a comparison because the

seminal “reference” paper was published around the same time as the first hESC paper. In addition, RNAi represents another clinically relevant, but far less controversial, research tool. Using this approach, Dr. Levine identified six countries that showed significant performance differences specific to the field of hESC research.

The results revealed a relatively clear relationship between policy environment and over-performance. The top four over-performing countries in hESC-related research have a history of permissive public policies that actively support derivation of new hESC lines from embryos leftover from fertility treatment and through the use of somatic cell nuclear transfer (SCNT). These countries complement their permissive policies toward the derivation of new hESC lines with government support for hESC research.

The relationship between under-performance and the policy environment is less clear, although the countries under-performing in hESC-related research lack the permissive policies seen in over-performing countries and offer policy environments characterized by ongoing debates and uncertainty. “The United States, though still the largest single producer of hESC-related research publications, is the largest under-performer by the metric used here,” says Dr. Levine. This significant under-performance suggests that federal funding restrictions and confusing state laws may have had a negative impact on the amount of hESC research conducted in the United States.

“By systematically comparing country performance in hESC-related research with performance in another emerging, but less contentious, field and biomedical research more broadly, this analysis offers new insight into the international development of hESC science,” says Dr. Levine.

Source: Cell Press

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