

Luncheon Symposia

[Korean]

September 14 (Tue), 12:20-13:10, Rm. 300

Research Ethics Symposium



Medical and Ethical Implications of Recent

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To date, three genome editing experiments on human embryos were performed using CRISPR-Cas9 (1-3). The results reveal limitations including off-target effects and mosaicism and highlight the need for further ethical deliberation on human germline editing. 1) Liang P et al. 2015. CRISPR/Cas9-mediated gene editing

in human triploid zygotes. Protein Cell 6(5):363-372, 2) Kang X et al. 2016. Introducing precise genetic modifications into human 3PN embryos by CRISPR/Cas-mediated genome editing, 3) Tang L et al. 2017. CRISPR/Cas9-mediated gene editing in human zygotes using Cas9 protein.



Bioethical Considerations of CRISPR-Cas9 Tech

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The recent development of the clustered regularly interspaced short palindromic repeat (CRISPR)/associated nuclease system, has greatly accelerated genome engineering applications. When these systems bind to a target DNA sequence in the genome, they create a DNA double strand break (DSB), the repair of which leads to specific DNA sequence modifications.

Recent results (Introducing precise genetic modifications into human 3PN embryos by CRISPR/Cas-mediated genome editing) call for immediate attention being paid to the regulation of the genetic modification of human germline cells. For any germline genetic

modification, the resulting allele needs to be precisely predefined. The specificity of the technologies needs to be further investigated and improved to ensure that no off-target mutations will be introduced. For any introduced allele, the effect of its introduction into a different genetic background needs to be carefully evaluated.

It is advocated for preventing any application of genome editing in the human germline until after a rigorous and thorough evaluation and discussion are undertaken by the global research and ethics communities.

Co-Organizers & Chairs : Eun-Kyeong Jo, M.D., Ph.D. (Department of Microbiology, Chungnam National University School of Medicine, Korea)
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