Title: Spontaneous Integration of Human DNA Fragments into Host Genome
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Introduction

A tris of recent publications in the journal NEUROLOGY reports the presence of hundreds of diverse de novo gene mutations indicating that autism spectrum disorder (ASD) is not caused by de novo mutations but by a significant environmental component. Altered double strand break formation and repair pathways (DBS) during genotoxic stimulation. This study demonstrated that ASD is caused by de novo mutations.
Cell free DNA can be taken up by healthy cells via receptor mediated uptake or may spontaneously penetrate cell membranes that have altered permeability, for instance, during inflammatory reactions. Nucleopore uptake of cell free DNA fragments is thought to provide a source for maintenance of DNA integrity during repair pathways and base repair. Spontaneous extracellular DNA uptake has also been exploited for gene therapy as well as for cellular gene correction (Z.A.T., 200). When free DNA uptake has been used adjuvantly, the process has also associated with generation of mutations and chromosomal abnormalities (2).

Table 1: Levels of residual human double stranded DNA (Pigecron assay) and human single stranded DNA (Oligonucleos acid) in Rubella virus (Merkvirus) and Hepatitis A virus (HAVRRX).

<table>
<thead>
<tr>
<th>Vaccine name</th>
<th>Double Stranded DNA (ng/vial)</th>
<th>Single Stranded DNA (ng/vial)</th>
<th>Length (bps)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marivac II (Rubella)</td>
<td>142.05</td>
<td>35.00</td>
<td>240</td>
</tr>
<tr>
<td>HAVRRX (Hepatitis A)</td>
<td>276.00</td>
<td>35.74</td>
<td>Not measurable</td>
</tr>
</tbody>
</table>

Materials and Methods: Human Cot DNA (mitogen) was labeled with Minus Label It C (TM) Labeling K0.937. U937 cells (monocytes) were grown in Dulbecco’s Modified of Eagle’s Medium (DMEM) supplemented with 15% fetal bovine serum (FBS) and 5% antibiotic-antimycotic solution. The amount of Cot labeled human Cot DNA incorporated into U937 chromosome was calculated with relative fluorescent unit (RFU) measured by a fluorimeter.

Discussion

Cellular and nuclear DNA uptake in human foreskin fibroblasts (HFF1) cells and in NCCOT cells suggests that embryonic and neonatal cell are more susceptible to DNA uptake by healthy human cells from a more mature source. These results indicate the need for further study of DNA incorporation from exogenous sources to compare the susceptibility of infants and toddlers versus teens and adults.

The National Academy of Science US (National Academy of Science 2007, 11, 46) suggests DNA uptake can be caused by inflammation and internal macrophage activation. Our future research goals are to locate the sites of DNA integration, to demonstrate phenotype changes caused by foreign DNA integration in factor dependent cell lines, and to determine the biological or pathological activities of Human Endogenous Retrovirus. K (HERV-K) fragments in vaccines.

Conclusions

Not only damaged human cells, but also healthy human cells can take up foreign DNA. Spontaneously Foreign human DNA taken up by human cells will be transported into nuclei and be integrated into host genome. This will causes phenotype change. Hence, residual human fetal DNA fragments in vaccine can be one of causes of autism spectrum disorder in children through vaccination. Vaccine must be safe without any human DNA contamination or reactivated viruses, and must be produced in ethically approved manufacturing processes.

Acknowledgements: This work was funded by the M.J. Murdock Charitable Trust and private donations.