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Identical twins not as identical as believed

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Contrary to our previous beliefs, identical twins are not genetically identical. This surprising finding is presented by American, Swedish, and Dutch scientists in a study being published today in the prestigious journal *American Journal of Human Genetics*. The finding may be of great significance for research on hereditary diseases and for the development of new diagnostic methods.

How can it be that one identical twin might develop Parkinson's disease, for instance, but not the other? Until now, the reasons have been sought in environmental factors. The current study complicates the picture.

"Even though the genome is virtually identical in identical twins, our results show that there in fact are tiny differences and that they are relatively common. This could have a major impact on our understanding of genetically determined disorders," says Jan Dumanksi, who co-directed the international study with his colleague Carl Bruder.

"By uncovering these small genetic differences in identical twins where one of them is sick, we have a way of tying specific genetic changes to the genesis of common diseases," says Carl Bruder.

These researchers studied 19 pairs of identical twins and found that they indeed had the same DNA but nevertheless evinced differences in the number of copies of individual DNA segments. A segment might be missing, or more copies might exist in one twin. This could explain how one identical twin can be afflicted with a disorder while the other twin remains fully healthy, according to the scientists.

Source: Uppsala University

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