



Press release from Emotra AB (publ)  
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## Emotra: Important research study explains the biological mechanism behind EDOR® and hyporeactivity

**Emotra is proud to announce that Lars-Håkan Thorell, Emotra's Head of Research and the inventor of EDOR®, in his research for Emotra has demonstrated the biological mechanism behind hyporeactivity. This discovery explains why an increased suicide risk can be identified by EDOR®.**

The most common question clinics ask Emotra is why hyporeactive patients show a higher suicide risk. They seek a biological explanation for why EDOR works.

Lars-Håkan Thorell's discoveries now explain the mechanism behind the phenomenon of hyporeactivity.

Thorell has carried out a large amount of research based on psycho-physiological and psychological studies of the relationship between electrodermal hyporeactivity and suicide risk. For a long time, his science-based hypothesis has been that hyporeactivity is caused by damage to specific neurons in the CA3 region of the hippocampus. His research has focused on deeper psycho-physiological studies and extensive literature studies of modern, detailed biological research on the damaging effects of, among other things, chronic stress on these neurons. These studies have enabled Thorell to make the connection between discoveries in psycho-physiological research and concrete observations from biological studies of the affected area in the hippocampus.

This is the first time a theory based on experimental and clinical studies can be presented, a theory which cohesively describes the process from the start of a damaging stress reaction until a vulnerability for suicide risk in depressed patients appears. This cohesive theory is quite revolutionary within the area of suicide research, which in combination with testing with EDOR® can have strongly desired positive consequences for suicide prevention.

We must also mention that there are other causes of damage to the CA3 neurons, for example childhood traumas and inflammation in the brain. These afflictions can more or less directly replace chronic stress as the cause of damage, having the same consequences for hyporeactivity and vulnerability for suicide.

Contemporary biological research has, without associating to psycho-physiological research, established that the apical dendrites in the pyramidal cells of the CA3c region relay information from the cerebral cortex to the hippocampus. Recent biological research has established that the CA3c neurons play a central role in the detection of unexpected events or circumstances, determining details about these events or circumstances, and distinguishing deviations. These characteristics are very well-known in psycho-physiological

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*Emotra AB (publ) is a medical technology company that carries out research, development, clinical studies and marketing in the area of suicide prevention. The Company's method, EDOR®, is a proprietary, objective and quantitative diagnostic, psychophysiological test for detecting hyporeactivity in patients suffering from depression.*



research. They are measured in habituation tests of electrodermal response, such as EDOR® Test.

### **Comments from Lars-Håkan Thorell, Head of Research**

*“These discoveries allow us, for the first time, to weave together the disciplines of biological and psycho-physiological research and apply it to suicidology. I have now turned my attention to preparing a special, theoretical, scientific paper in which the comprehensive components of the explanatory model for depressive suicide will be presented and discussed.”*

This biological explanation is a strong argument for using EDOR in clinical practice. The clear connection between suicide risk and hyporeactivity, which has been demonstrated in blind clinical studies, is another strong reason for regularly testing patients with EDOR. These arguments have been reinforced by the aggregate of the blind pioneering studies which recently demonstrated that the suicide risk in the minority group with hyporeactive patients (12–15 percent of the patients are hyporeactive), is up to 25 times higher compared with normally reactive patients, who are the majority.

As we have previously reported, further studies are ongoing and will be reported as they become ready. The article on our completed multi-centre study, EUDOR-A, is among these. For ethical reasons, considering the results of the previously conducted blind studies as well as Lars-Håkan Thorell’s previous knowledge of hyporeactivity and its associated suicide risk, EUDOR-A was designed as an open, naturalistic study. This means that the study was performed without control groups or comparative populations, and that the clinics were immediately informed of the test results. From Emotra’s perspective, the study can be used as a field study that enables us to examine the practical application of EDOR in near-day-to-day clinical practice. As we have previously stated, some of the most important observations are that the clinics took serious consideration to the test results, and the study produced a much lower suicide frequency compared with earlier blind or partially blind studies.

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