

## MEA-neurochip screening for augmenting the efficiency of neuro-active phyto-pharmaceuticals

### Neuroactive phyto-pharmaceuticals

Natural medicine is trendsetting. The application of herbal pharmaceuticals to treat neurological ailments and diseases such as nervous agitations, sleep disorders, depression and pain has a great potential which is far from exhaustion. For a long time, phytotherapy is established in traditional medicine. They feature a good tolerance and are thus comparatively safe in application for the patient. However, it is difficult to proof the therapeutic effect of herbal drugs as it is hitherto nearly impossible to clarify the exact mode of action due to the complex chemical composition of these preparations.

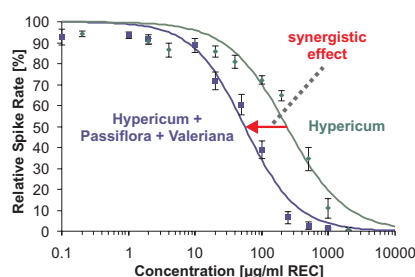
### NeuroProof screening technology

combines in a unique way the know-how of neuronal cell culture technologies with MEA neurochips and modern data-analysis procedures to interpret the substance-specific network activity patterns. Compared to established cell lines such as neuroblastoma or PC 12, functional neuronal cell cultures have the advantage that the primary cultures are heterogeneously composed of different types of neurons and glial cells which form two dimensional nervous systems. The communication within neuronal networks is the actual functional unit in the nervous system. Thus, neuronal networks in vitro represent the in vivo situation considerably better than single-cell systems, and they are a well-suited model for neurophysiological investigations. Tests on neuronal cell cultures basically outmatch animal experiments because they allow the direct analysis of cellular mechanisms. The complex electrical activity patterns of spontaneously active neuronal networks on MEA neurochips functionally react to biological and chemical influences, i.e. they lend themselves to be used as biosensors for neuroactive substances.

### Proof of effect

The effectivity respectively toxicity in general and especially the mode of action and synergistic effects of neuroactive herbal pharmaceuticals can be proven with functional screening procedures such as NeuroProof technology. Furthermore, the comparison with synthetic drugs of the same indication field furnishes important information.

### Optimizing the efficiency of combination preparations



The secret of a herbal combination preparation consists of the ideal composition of effective components such as St. John's wort, valerian, hop, and passion flower. Thereby an interaction of different effects is caused. The optimal mixing ratio of substance mixtures can be found with isobolographic analysis of the dose-dependent changes in the electrical network activity.

### Our offer

We offer you the results of the proof and mode of action of your preparations as well as target parameters for the optimization of your combination preparations.

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