

FEAD-600: A Breakthrough in Auditory Neurotherapy

The **FEAD-600** represents a groundbreaking innovation by **Doğuş Medikal** and the **LORECa Research Group**, designed to transform the treatment landscape for **sensorineural hearing loss, tinnitus, and hyperacusis**.

Utilizing **Fluctuating Microcurrent Technology (FMT)**, this non-invasive electrotherapy device delivers precisely modulated microcurrents through auricular and nasal pathways to stimulate neural regeneration and enhance auditory perception.

Unlike traditional hearing aids that only amplify sound, **FEAD-600 actively promotes auditory nerve recovery**, potentially reducing or eliminating the need for external amplification devices.

The system integrates with a **mobile application** that allows clinicians and users to manage therapy sessions, monitor progress, and personalize stimulation parameters.

Currently undergoing **preclinical validation and CE/MDR certification**, FEAD-600 has shown in pilot studies an **improvement of up to 35 dB** in hearing thresholds and a **notable reduction in tinnitus perception**.

This project not only demonstrates **Turkey's growing leadership in medical innovation**, but also offers investors a **scalable, export-ready medical technology** positioned for global adoption in the \$15 billion auditory health market.

💡 **LORECa – Hear Life, Not Just Sound.**

Scientific Overview of FEAD-600

For ENT Specialists, Audiologists, and Clinical Researchers

FEAD-600 is a non-invasive auditory neuromodulation device developed to address **sensorineural hearing loss, tinnitus, and hyperacusis** through a novel **Fluctuating Microcurrent Technology (FMT)**.

The device delivers precisely modulated microcurrents through auricular and nasal pathways to stimulate auditory neural circuits and promote functional recovery.

Scientific Rationale

Recent research in neurophysiology and electrophysiology has shown that **microcurrent-based neuromodulation** can support auditory function through several biological mechanisms:

1. Modulation of Neuronal Membrane Thresholds

Low-intensity electrical currents influence ion channel activity, enhancing neural excitability and improving auditory signal transmission.

2. Improvement of Cochlear Microcirculation

Microcurrent stimulation increases local blood flow and oxygenation, which is essential for the recovery of hair cells and auditory nerve fibers.

3. Reduction of Glutamate-Driven Neurotoxicity

Tinnitus and sudden sensorineural hearing loss often involve excitotoxic pathways; electrical modulation may downregulate this harmful neural activity.

4. Promotion of Neuroplasticity

Regular patterned microcurrent input can facilitate reorganization and reactivation of weakened auditory pathways—supporting long-term rehabilitation.

These mechanisms are consistent with findings in **electrical neuromodulation, microcurrent therapy (MENS), and transcutaneous nerve stimulation literature.**

Clinical Advantages of FEAD-600

✓ Non-invasive, safe neuromodulation approach

Surface electrodes enable stimulation without invasive procedures.

✓ Significant impact on tinnitus

Pilot studies have demonstrated:

- Noticeable reduction in tinnitus severity in **70%** of patients
- Hearing threshold improvements of **10–35 dB** in selected SNHL cases
- Reduced sound sensitivity in hyperacusis patients

✓ Mobile-connected, clinician-guided therapy

A dedicated mobile app enables controlled sessions, parameter tracking, and personalized treatment programs.

✓ Minimal clinical workload

ENT physicians can monitor:

- Session compliance
- Stimulation parameters
- Symptom changes
- Longitudinal treatment outcomes through a secure clinician interface.

✓ A new therapeutic paradigm targeting neural recovery

FEAD-600 does not amplify sound; instead, it aims to **restore auditory neural function**, representing an entirely different category of treatment.

Potential Clinical Indications

- Sensorineural hearing loss (acute and chronic)
 - Tinnitus (high-frequency paresthesia type)
 - Hyperacusis
 - Noise-induced hearing trauma
 - Post-ototoxic or metabolic auditory nerve dysfunction
 - Auditory neuropathy spectrum–related symptoms
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Why It Matters Scientifically

- ✓ First **Turkish-developed neuromodulation device** targeting auditory neural regeneration
 - ✓ Uses a **unique fluctuating microcurrent modulation** not found in existing therapies
 - ✓ Aligned with modern models of auditory neuroscience and neuroplasticity
 - ✓ Offers a viable path toward functional recovery rather than symptomatic compensation
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Conclusion: A New Therapeutic Model for ENT Practice

FEAD-600 represents a promising non-invasive therapeutic platform that supports **auditory nerve rehabilitation** and **neural pathway reactivation**.

With its safe application profile, digital monitoring tools, and evidence-based rationale, it

provides ENT specialists with a **clinically meaningful and innovative option** beyond traditional amplification devices.