## **Exhibit C - Company Materials**

# The NeuroPace® RNS® System for Responsive Neurostimulation

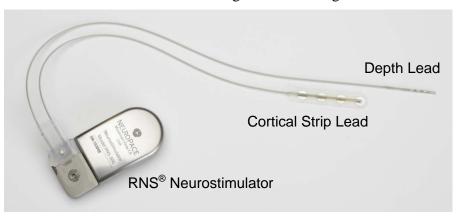
The NeuroPace RNS® System is a commercially available closed-loop responsive neurostimulation system approved for the adjunctive treatment of medically intractable partial onset seizures. The RNS® Neurostimulator continuously monitors electrocorticographic (ECoG) brain activity and delivers electrical stimulation in response to physician specified patient-specific ECoG patterns. ECoG data are wirelessly retrieved from the Neurostimulator and sent to the NeuroPace Patient Data Management System (PDMS) using a Physician Programmer or Patient Remote Monitor. The secure web accessed PDMS interface is used by physicians to view the history of all neurostimulator programmings, all detections and stimulations, and sampled ECoGs. In addition, new detection configurations can be simulated against the stored ECoG samples prior to reprogramming detection in the neurostimulator.

#### **Indication for Use**

The RNS® System is an adjunctive therapy in reducing the frequency of seizures in individuals 18 years of age or older with partial onset seizures who have undergone diagnostic testing that localized no more than 2 epileptogenic foci, are refractory to two or more antiepileptic medications, and currently have frequent and disabling seizures (motor partial seizures, complex partial seizures and / or secondarily generalized seizures). The RNS® System has demonstrated safety and effectiveness in patients who average 3 or more disabling seizures per month over the three most recent months (with no month with fewer than two seizures), and has not been evaluated in patients with less frequent seizures.

# **RNS® System Components**

The RNS<sup>®</sup> System includes a cranially-implanted neurostimulator along with depth and/or cortical strip leads as shown below. The neurostimulator dimensions are 60 x 27.5 x 7.5 mm, allowing the system to be fully implanted in the skull. Other components include a Physician Programmer, a Patient Remote Monitor and a magnet for marking events.



## **Sensing and ECoG Acquisition**

The RNS<sup>®</sup> Neurostimulator uses four user-configurable differential amplifiers to continuously monitor electrographic activity. ECoG storage may be triggered by several different events.

Alternatively, ECoGs can be streamed from the Neurostimulator to the Programmer in real time, while stimulation is adjusted and tested. Sensing and ECoG Specifications are summarized in the table below.

**RNS® System ECoG Sensing Specifications** 

Feature	Specifications
Electrodes	4 electrodes per lead (depth or strip)  Depth: 1.27 mm Ø x 2.00 mm, 0.08 cm surface area  Strip: 3.175 mm Ø, 0.08 cm surface area
ECoG Channels	4 differential channels, 2 electrodes per amplifier user-selectable sensing montage
Dynamic Range	10-bit A/D conversion (digital values 0-1023, 512 = 0 volts)
Gain Levels	4 gain levels (low, med-low, med-high, high)
Resolution	0.8, 1.2, 2.0, 3.8 μV per bit
Dynamic range	0.8, 1.2, 2.1, 3.9 mV range
Sampling Rate	250 samples/second
Low-Pass Filter	-3dB at 30, 60, 90, 120 Hz (default = 90 Hz)
High-Pass Filter	-3dB at 4, 8, 12 Hz (default = 4 Hz)
ECoG Storage	30.5 channel*minutes total storage 1 to 4 channels selectable 30, 60, 90, 180, 240 seconds duration 2/3 of ECoG pre-trigger, 1/3 post-trigger 1-61 maximum ECoGs stored (e.g. 30 4-channel 30-sec ECoGs) older ECoGs are overwritten unless reserved
ECoG Triggers	Magnet, Responsive Therapy, Pattern A or B Detection, Long-Episode, Saturation, Noise, Scheduled
Real-Time ECoG	The most recent 4 minutes are stored in the Programmer

#### **ECoG Pattern Detection**

The RNS® Neurostimulator incorporates several pattern detection tools that can be configured to detect up to four different ECoG patterns. These detection tools include Half-Wave, Line Length, and Area algorithms. The Half-Wave algorithm is used to detect oscillations within selected frequency ranges, as well as LFP spike detection. The Line Length algorithm measures signal complexity and is sensitive to both frequency and amplitude changes. The Area algorithm measures area-under-the curve and is sensitive to amplitude changes. In practice, these detection tools are very effective at detecting abnormal epileptiform activity associated with epilepsy, including seizures, seizure onsets and interictal discharges. These patterns are variously characterized by amplitude decreases or increases, oscillation in the gamma, beta, alpha, theta or delta ranges, LFP spikes, and combinations of these patterns.

#### **Responsive Neurostimulation**

Closed-loop electrical stimulation is delivered by the RNS<sup>®</sup> Neurostimulator in response to detection of any of the four different biomarker patterns.

## **Stimulation Capabilities**

Electrical stimulation may be delivered to any combination of electrodes and the neurostimulator housing. Stimulation may be responsive or programmer-commanded (PC Stim). Available stimulation parameters are summarized in the table below.

**RNS®** System Stimulation Specifications

Parameter	Specifications
Waveform	Current-controlled, symmetrical bi-phasic square wave
Montage	Any set of electrodes including the neurostimulator housing may be assigned to the anode or cathode
Amplitude	0-12 mA
Pulse Width	40-1000 microseconds per phase
Frequency	1-333 Hz
Burst Duration	10-60,000 milliseconds (PC Stim) 10-5,000 milliseconds (Responsive)
Number of Bursts	2 bursts; Burst 2 is delivered immediately after Burst 1; all parameters of Burst 2 may be different from Burst 1; Bursts 1 and 2 may be configured detection-specific
Adaptive Stimulation	Frequency may optionally be calculated as 6.25 to 200% of a pre-defined ECoG Half-Wave frequency
Synchronized Stimulation	Stimulation may optionally be synchronized to the phase (0-250 ms) and direction of a pre-defined ECoG Half-Wave

#### **Data Communication**

ECoG recordings, time-stamped event records, and hourly counts of detections and stimulations are stored in the Neurostimulator for later retrieval. Wireless telemetry is used to program the Neurostimulator and retrieve stored data by both the patient and the physician. After downloading data from the Neurostimulator, data are uploaded to the NeuroPace Patient Data Management System (PDMS) for viewing by the physician.

#### **Research Accessories**

NeuroPace has developed research accessories to the RNS® System for use in IRB or IDE clinical studies. These accessories allow several functions that are normally performed by the user with the physician Programmer to be controlled by an external computer via TTL pulses over BNC cables. These functions include: (1) insertion of markers into real-time ECoGs, (2) magnet triggering of ECoG storage in the Neurostimulator, and (3) triggering of Programmer-commanded stimulation. These functions can be used to align ECoG recordings with an experimental protocol controlled by an external computer, and deliver stimulation at specific times during the protocol. These research accessories can be used to collect over an hour of

continuous ECoG data at a time. The ECoG data can then be transferred to IEEG.org for subsequent processing with MATLAB software.

# **Exhibit D Company Support for Research Programs**

NeuroPace<sup>®</sup> is a small science-driven company founded in 1997 to develop a responsive neurostimulator for the treatment of epilepsy. NeuroPace's first product, the RNS<sup>®</sup> System was approved by FDA for treatment of medically intractable partial seizures in late 2013 after 18 years of technical and more than a decade of clinical development. Many of the same people that supported the technical and clinical development of the RNS<sup>®</sup> System are still at NeuroPace and participate in external research collaborations. NeuroPace is not able to provide in-kind resources. However, the accessories and methods developed to support research using the RNS<sup>®</sup> System will be available to NeuroPace research collaborators if funding is allocated for these resources.