



Baroreflex study in a mouse with BRS10a

KEY FEATURES

- Online baroreflex sensitivity assessment
- Automated baroreflex sequence extraction
- Slope and baroreflex effectiveness index
- Automated cross-spectral analysis
- Cross-spectrum coherence, gain and phase

SPONTANEOUS BAROREFLEX DETECTION

The aim of the **arterial baroreflex** is to maintain blood pressure homeostasis.

The standard methodology for estimating baroreflex function consists in evaluating the baroreflex control of heart rate. Concomitant fluctuations in the **time and frequency domains** are extracted from continuous recording of blood pressure and heart rate.

Our solutions

NOTOCORD[®] developed 2 modules based on these two approaches to assess baroreflex sensitivity:

- **BRS10a** identifies parallel time series of systolic blood pressure and pulse interval.
- **CSA10a** calculates cross-spectral parameters at specific frequencies from the same signals.

BAROREFLEX SEQUENCE ANALYSIS

BRS10a performs online detection of spontaneous baroreflex sequences using **systolic pressure and pulse interval** on successive zones.

Ascending (type 1) and **descending** (type 2) baroreflex sequences are detected when systolic blood pressure and pulse interval respectively increase or decrease simultaneously.

CROSS-SPECTRUM ANALYSIS

CSA10a is a **cross-spectrum** analyzer for use in spontaneous baroreflex studies with systolic blood pressure and pulse interval or RR interval.

Systolic blood pressure and pulse interval fluctuate at regular frequencies and the magnitude may be accurately quantified using power spectral analysis. **Frequency domain** methods are widely used for investigating heart rate and systolic blood pressure variabilities in humans and conscious animals.

BRS10A: BAROREFLEX SEQUENCE ANALYZER

BRS10a discriminates ascending and descending baroreflex sequences from a systolic blood pressure signal. The analyzer extracts baroreflex slope (in ms/mmHg) and Baroreflex Effectiveness Index for the two types of sequences.

BRS10a uses a time domain technique with an approach based on the identification of a sequence in which progressive increases / decreases in systolic blood pressure are followed by a progressive lengthening / shortening in pulse interval of at least 3 beats.

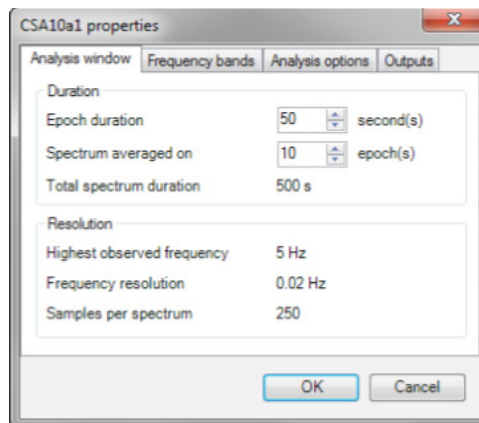
BRS10a also allows to set a synchronization delay between systolic blood pressure and pulse interval if the baroreflex impairment induces a delayed response.

CSA10A: CROSS-SPECTRUM ANALYZER

CSA10a computes the Discrete Fourier Transform (DFT) of the cross-correlation between 2 input signals, referred to as the cross-spectrum. The module extracts the Power Spectral Density (PSD), coherence, gain and phase of the cross-spectrum as well as the PSD of each input signal.

Coherence can be used as a statistical quality index for gain and phase values. Baroreflex sensitivity is estimated using the gain in bandwidths representing sympatho-vagal contributions to oscillations of systolic blood pressure and heart rate.

The phase allows assessing the shift between the stimulus (systolic blood pressure variability) and the response (pulse interval or RR duration fluctuations) at specific frequencies.



CSA10a properties window

+ Related products

APR31a	Arterial blood pressure analyzer
DTV10a	Delay and amplitude between two points
ECG30/31x	Series of electrocardiogram analyzers
RSP30a	Restraint animal respiration analyzer
XYD30a	XY scope with 3D display and curve fitting capabilities

Baroreflex Solutions

EUROPE - Headquarters

NOTOCORD SAS
Tel. +33 (0)1 34 80 00 00
information@notocord.com

NORTH AMERICA

NOTOCORD Inc.
Tel. +1 888 204 7770
information@notocord.com

JAPAN

PRIMETECH Corp.
Tel. +81 (0)3 3816 0851
sales@primetech.co.jp

SOUTH KOREA

IWOO Scientific Corp.
Tel. + 82 (0)2 3473 2332
sale@iwoo.co.kr
SEJONG-BIO
Tel. + 82 (0)4 2826 9473
sales@sejong-bio.co.kr

TAIWAN

MESONICS Systems Ltd.
Tel. + 886 2 2736 4066
info@mesonics.com.tw

CHINA

B&E Teksystems Ltd
Tel. + 86 10 8758 5773
bandetek@hotmail.com

INDIA

BIO-DOT Scientific, New Delhi
Tel: +91 11 2636 3490
upkar@biodotscientific.com

Working in a GLP environment?

21 CFR Part 11 compliance is achieved via our AccessManager security application, activating a highly secure and compliant Audit Trail.



Version 1.0 - © NOTOCORD - All rights reserved.

Because we have a policy of continuous product improvement, NOTOCORD reserves the right to change specifications without notice. The information provided in this brochure are not intended to form part of any offer or contract.



www.notocord.com
information@notocord.com
+33(0) 1 34 80 00 00