Joint Meeting of the Austrian Pharmacological Society and the Austrian Neuroscience Association

19th Scientific Symposium of APHAR and 13th ANA Meeting

APHAR / ANA 2013

16–19 September 2013
VIENNA

Centre of Physiology and Pharmacology of the Medical University of Vienna

www.aphar.at

www.austrian-neuroscience.at
Location

Centre of Physiology and Pharmacology
Währinger Straße 13a/Schwarzspanierstraße 17 – 1090 Vienna
Phone registration desk: +43 1 40160/312 99
Registration and Organisation

Registration fees:

**ANA/APHAR regular members: € 50,**--

**ANA/APHAR student members: € 25,**-- Reduced registration fees are applicable to student members upon confirmation of student status at the meeting office

**Non-members: € 75,**-

Registration desk - opening hours:

- **Monday, Sep 16:** 12:00 – 17:00
- **Tuesday, Sep 17:** 08:30 – 16:00
- **Wednesday, Sep 18:** 08:30 – 16:00
- **Thursday, Sep 19:** 08:30 – 11:00

Local Organizing Committee:

Stefan Böhm (Chair), Michael Freissmuth, Johannes Hainfellner, Alexandra Koschak, Rupert Lanzenberger, Harald Sitte representing the Medical Neuroscience Cluster at the Medical University Vienna

Language:

All presentations (with exception of the ANA special event) shall be given in English

Information for presenting authors:

Short oral communications: presentation should be 10 minutes, followed by a 5 min discussion.

Posters should be mounted in the morning and should be left on display for the entire day. Poster dimensions: A0 portrait. Presenting authors are requested to attend their posters during the designated poster session.
Exhibition

HEKA Elektronik Dr. Schulze GmbH
Multi Channel Systems
Nikon
NPI Electronic

Sponsors

The EPHAR Symposium is sponsored by EPHAR, the Federation of European Pharmacological Societies

The Symposium in Medical Neurosciences is sponsored by the Medical Neuroscience Cluster

Drinks and food during coffee breaks are supported by AMGEN

Poster boards are provided by the doctoral program ‘Cell Communication in Health and Disease’

Name badges are provided by the SFB ‘Transmembrane Transporters in Health and Disease’

Supporting Members of APHAR

[Logos and images of various companies]
12:00 – 14:00   Registration, poster mounting, and initial poster viewing
12:30 – 13:50  General assembly ANA

13:50  Official opening of the Meeting by the ANA president, Michaela Kress

14:00 – 15:45  Oral Communications I
Chair: Ludwig Aigner (Salzburg)

A1.39 Savli, Markus: Serotonergic organization of the human brain: a multi-tracer positron emission tomography study of healthy subjects
A1.38 Kraus, Christoph: Brain-derived neurotrophic factor genotype status impacts on hippocampal serotonin 5-HT_{1A} receptor binding
A1.42 Sedlitzky-Semler, Brenda: Alterations of tryptophan metabolites in the serum of stroke patients after repetitive transcranial magnetic stimulation
A1.15 Katona, István: Cell type- and synapse-specific STORM superresolution imaging of the endocannabinoid system: a new approach to combine physiology, anatomy and quantitative molecular imaging at the nanoscale
A1.28 Klein, Barbara: Allergic lung inflammation enhances proliferation and modulates microglial activity in the hippocampal dentate gyrus
A1.36 Sarto-Jackson, Isabella: The cell adhesion molecule neuroplastin-65 regulates synaptic localization of GABA_{A} receptors
A.40 Schicker, Klaus: Vision impairment in congenital stationary night blindness type 2 (CSNB2): insights from gain-of-function mutations in Ca_{v}1.4 L-type calcium channels

15:45 – 17:00  Poster session I (ion channels, synaptic transmission, behaviour) & coffee

17:00 – 18:00  Special ANA event (in German):
Geist, Wille und Bewusstsein
Chair: Markus Kunze (Vienna)
Ludwig Huber (Wien): Evolutionäre, vergleichende und soziale Aspekte von Willenshandlungen
Volker Gadenne (Linz): Sind Geist und Bewusstsein naturalisierbar?

18:00 – 19:00  Otto Loewi award ceremony (provided by AstraZeneca)
ANA and AstraZeneca representatives

19:00  ANA social event at Bierheuriger Gangl, Altes AKH, Campus Hof 1, 1090 Vienna

Red numbers are abstract numbers as published via the webpages of the societies (X denotes unpublished abstracts)
ANA Symposium in Medical Neurosciences: from neurodegeneration to psychosis
(Supported by the Medical Neuroscience Cluster at the Medical University of Vienna)

Chair: Rupert Lanzenberger (Vienna)

09:00-09:20 Gabor Kovacs (Vienna): Biomedical research areas in human neurodegeneration
09:20-09:50 Markus Tolnay (Basel): Prion-like transmission and spreading of tau pathology in transgenic mice
09:50-10:20 Isidro Ferrer (Barcelona): Metabolomics in human neurodegenerative diseases
10:20-10:45 Walter Pirker (Vienna): Parkinson's disease - from symptomatic treatment towards a cure
10:45 – 11:45 Poster session II “Medical Neurosciences” & coffee

Chair: Johannes Hainfellner (Vienna)

11:45-12:10 Rupert Lanzenberger (Vienna): Advances in neuroimaging using PET and fMRI
12:10-12:35 Franz Vollenweider (Zurich): Ketamin, Psilocybin, LSD model psychosis
12:35-13:00 Dan Rujescu (Munich and Halle): Psychiatric Genetics
13:00-13:25 Dietmar Winkler (Vienna): Nonpharmacological biological treatments in psychiatry
13:30 – 14:30 Lunch break

SFB and DK afternoon

14:30 – 15:45 Oral Communications II for SFBs and DKs

Chair: Harald Sitte (Vienna)

A2.2 Salzer, Isabella: Excitation of rat sympathetic neurons via M1 muscarinic receptors involves proteinkinase C and chloride channels
X.23 Lukács, Péter: Engineering a second ion-conducting pore into the voltage-gated Na⁺ channel
X.20 Stockner, Thomas: Development of a zinc-dependent serotonin transporter: modelling, simulations and experimental scrutiny
X.22 Koban Florian: ER export of neurotransmitter transporters
A2.6 Kudlacek, Oliver: Transmembrane transporters of Fasciola hepatica: new targets of anthelmintic therapy

15:45 – 17:00 Poster session III for SFBs and DKs & coffee

17:00 – 18:15 Oral Communications III for SFBs and DKs

Chair: Jörg Striessnig (Innsbruck)

A2.5 Campiglio, Marta: Stable incorporation versus dynamic exchange of β subunits in a native calcium channel complex
A2.10 Etemad, Solmaz: Differential targeting properties of a new, and two previously known, calcium channel β4 splice variants in primary cultured neurons
X.11 Sah, Anupam: Bidirectional modulation of depression-related behavior following dietary magnesium: preventive and therapeutic implications
X.2 Schmuckermair, Claudia: Neurobiological effects of successful nucleus accumbens deep brain stimulation in a mouse model of high anxiety- and depression-like behaviour
X.12 Sartori, Simone B: Neuropeptide S promotes extinction and prevents the return of fear with D-cycloserine or MS275 adjunction in a psychopathological model
Wednesday, Sep 18, 2013
EPHAR Symposium: Classification, mechanisms and treatment of epilepsies

Chair: Thomas Griesbacher (Graz)

09:00-09:40  C. Baumgartner (Vienna): Clinical classification of epilepsies
09:40-10:20  D. Kullmann (London): Epileptic Channelopathies
10:20-11:00  Ortrud Steinlein (Munich): Genetics of epilepsies: focus on ion channels

11:00 – 11:45  Poster session IV “epilepsy” & coffee

Chair: Christoph Schwarzer (Innsbruck)

11:45-12:25  M. Taglialatela (Campobasso): Kv7 Channels as targets for antiepileptics
12:25-13:05  M. Bankstahl (Hannover): Antiepileptic pharmacotherapy
13:05-13:20  selected short oral presentation

Kubista, Helmut: Electrophysiological evidence of a neuropathogenic potential of paroxysmal depolarization shifts

13:20 – 14:30  Lunch break

14:30 – 15:45  Oral Communications IV

Chair: Francesco Ferraguti (Innsbruck)

X.16 Köhbach, Johannes: Peptide GPCRs as targets of circular plant peptides
X.17 Hellinger, Roland: Target deconvolution of circular plant peptides
A3.6 Mansouri, Mahnaz: Investigating the molecular mechanisms underlying the differential subcellular targeting of the metabotropic glutamate receptor 1 (mGlu1) in the cerebellar cortex
A3.10 Koenig, Xaver: The indole alkaloid ibogaine and its mechanism of KV11.1 channel block
A3.12 Saxena, Priyanka: F557L – a novel determinant of hERG channel inhibition: allosteric modulation or drug binding?

15:45 – 17:00  Poster session V & coffee

16:00 – 17:00  APHAR Clinical Pharmacology Section Assembly

17:00 – 18:00  plenary lecture

Chair: Thomas Stockner (Vienna)

Ulrik Gether (Univ. of Copenhagen & CBN - The Lundbeck Foundation Centre of Biomembranes in Nanomedicine, DK): Location is key – organizing membrane curvature and signalling complexes

18:00 – 18:15  Award of Honorary APHAR Membership

18:15 – 19:15  APHAR General Assembly

19:30 APHAR social event at Heuriger Welser, Probusgasse 12, 1190 Vienna
Thursday, Sep 19, 2013

9:00 – 10:30  Oral Communications V (clinical pharmacology)

Chair: Bernd Jilma and Ghazaleh Gouya (Vienna)

X.10 Hobl, Eva-Luise: Reversal strategy in antagonizing the P2Y<sub>12</sub> inhibitor ticagrelor
A4.1 Storka, Angela: Effect of liposomal curcumin on red blood cells in vitro
A4.3 Bauer, Martin: Blood–brain barrier P-glycoprotein activity in patients with therapy-refractory epilepsy before and after surgical focal resection assessed with (R)-[11C]verapamil and positron emission tomography
A4.4 Höflich, Anna: Ketamine-induced time-dependent modulation of the thalamo-cortical network in healthy volunteers
A4.6 Kranz, Georg S.: SSRI-induced occupancy of the serotonin transporter investigated with positron emission tomography
A4.7 Spies, Marie: The influence of cross-sex hormone therapy on stop-signal task-related brain activation measured with 7T fMRI

10:30 – 11:30  Poster session VI (Cancer, Inflammation, Immune System) & coffee

11:30 – 12:30  Plenary lecture (clinical pharmacology):

Chair: Brigitte Blöchl-Daum (Vienna)

Rembert Elbers (EMA-COMP, London, and BfAMR, Germany): The origins of life

12:30 – 13:30  Lunch break

13:30 – 14:45  Oral Communications VI

Chair: Michael Holzer (Graz)

X.15 Atanasov, Atanas G.: Identification of a novel natural neolignan derivative as a non-adipogenic PPAR-y agonist
A3.11 Kónya, Viktória: A biased non-Gα, OXE receptor antagonist, Gue1654, inhibits leukocyte activation
X.9 Ćurčić, Sanja: Acute-phase secretory phospholipases are potent anti-inflammatory mediators
A3.19 Erdem, Zeynep N.: FGFR3 and FGFR4 contribute to resistance in the therapy of colorectal cancer in vitro
A3.4 Putz, Eva Maria: CDK8-mediated STAT1-S727 phosphorylation restrains NK cell cytotoxicity and tumor surveillance

14:45 – 15:45  Poster session VII (Endothelial, epithelial, and muscle cells) & coffee

15:45 – 16:45:  Plenary lecture

Chair: Angelika Berger (Vienna)

Angelique Whitehurst (Univ. of North Carolina, USA): Synthetic lethality as an avenue to new cancer treatment strategies

16:45 – 17:00  Poster prize ceremony

17:00 – 17:45  Hans Horst Meyer & Heribert Konzett award ceremony

17:45 – 18:00  Closing ceremony by the APHAR president
Posters, Monday, Sep 16, 2013 (poster board numbers in parentheses)

Poster session I

Miscellaneous neurosciences
A1.6 Römer, Heiner: Asymmetry in the song of crickets: preferences of females and proximate mechanism of discrimination (A1)
A1.2 Petrova, Emilia: Effect of sodium nitrite intoxication on the cerebellar morphology in mature and aged rats (A2)
A1.9 Benedetti, Bruno: Mouse cerebellum: physiological and morphological development of the Purkinje neurons (A3)
A1.22 Camurdanoglu, Bahar Zehra: Functional characterization of a novel kinase loop phosphoserine during MuSK signal transduction (A4)
X.26 Doringier, Fabian: Neurotransmitter alterations in ether-lipid deficiency (A5)

Behavioural neurosciences
A1.4 Locker, Felix: Galanin receptor 3-deficient male mice exhibit anxiety-like phenotype (A6)
A1.24 Ronovskiy, Marianne: miRNA expression in learned safety (A7)
A1.37 Savalli, Giorgia: Amygdala clock gene expression and its relation to depression-like behavior in mice (A8)
A1.46 Tasan, Ramon O.: Y2 receptors and pancreatic polypeptide are crucial components for fear extinction and permanent suppression of fear (A9)
A1.48 Verma, Dilip: Neuropeptide Y Y2 receptors modulate fear conditioning in distinct nuclei of the amygdala (A10)
X.3 Maurer, Verena: Gene expression changes induced following rescue of impaired fear extinction: evidence for a role of dopaminergic signalling (A11)
X.8 Sartori, Simone B.: Dysregulated monoaminergic neurotransmission in the amygdala of a mouse model of high trait anxiety during enhanced fear learning (A12)
A1.16 Wood, James: The role of the NPY Y2 receptor in GABAergic neurotransmission within the extended amygdala (A13)

Ion channels & synaptic transmission
A1.45 Rizzi, Sandra: Subunit composition and distribution of potassium channels of the Slo gene family (B1)
A1.25 Erdem, Fatma Aslı: Phosphorylation-mediated surface expression of voltage-gated K7 channels (B2)
A1.13 Hu, Hua: A supercritical density of fast Na+ channels ensures rapid propagation of action potentials in GABAergic interneuron axons (B3)
A1.19 Gawali, Vaidhavkumar S.: An Na+1.4 mutant with defective inactivation is extraordinarily sensitive to lidocaine (B4)
A1.47 Schöpf, Clemens Lukas: Calcium channel αδ subunits: sub-synaptic localization in cultured hippocampal neurons and phenotypic characterization of αδ-1/-3 knockout mice (B5)
A1.50 Geisler, Stefanie: Phenotypic characterization and brain structure of calcium channel αδ subunit double knockout mouse models (B6)
A1.5 Sultana, Nasreen: Expression and function of the skeletal muscle calcium channel splice variant Ca1.1ΔE29 (B7)
A1.30 Marschallinger, Julia: Ca1.2 and Ca1.3 L-type calcium channels are expressed within the neurogenic regions and have functional impact on adult neurogenesis (B8)
A1.51 Ramprecht, Claudia: Distribution of Ca1.2 L-type voltage-gated calcium channels and β-adrenergic receptors signaling complexes in cultured hippocampal neurons (B9)
A1.32 Pernia-Andrade, Alejandro: Theta-gamma-modulated synaptic currents in hippocampal granule cells in vivo define a mechanism for network oscillations (B10)
A1.49 Vyleta, Nicholas P.: Loose coupling between Ca2+ channels and sensors enables endogenous buffer control of release probability and short-term dynamics at a cortical synapse (B11)
X.25 Cicvarić, Ana: A role for podoplanin in the regulation of the hippocampal synaptic function (B12)
A1.17 Mika, Johann K.: Electrical and morphological properties of neurites investigated by a novel microelectrode–microfluidic device (B13)
Posters, Tuesday, Sep 17, 2013 (poster board numbers in parentheses)

Poster session II (Medical Neurosciences)

Medical neurosciences

A1.35 Redl, Markus: Sex-specific effects of plasalogen deficiency on Aβ peptides and plaque load in the APPswe/PS1dE9 transgenic mouse model for Alzheimer’s disease (B2)
A1.1 Hohsfield, Lindsay: The efficacy of NGF-secreting primary monocytes as therapeutic delivery vehicles in a cognitively impaired cholesterol rat model (B3)
A1.41 Sedlnitzky-Semler, Brenda: Alterations of tryptophan metabolism in serum and cerebrospinal fluid of patients after stroke (B4)
A1.43 Seidel, Eva-Maria: Early vs. late neural mechanisms during certain vs. uncertain pain anticipation: an EEG and fMRI experiment (B5)
A1.44 Weber, Franziska: Monocytes but not lymphocytes are severely affected in X-linked adrenoleukodystrophy (B6)
A1.33 Pfabigan, Daniela: Association between P300 amplitudes and ventral striatum BOLD response during gain and loss anticipation (B7)
A1.23 Couillard-Després, Sébastien: Targeting of Smad7 for the modulation of neurogenesis and cognition in the aged mouse (B8)
A1.31 Muneer, Zahid: Abcd2 expression prevents a severe metabolic phenotype in Abcd1-deficient mouse peritoneal macrophages (B9)
A4.5 Ganger, Sebastian: Missing short-term influence from ketamine on gray matter (B10)
A1.21 Berger, Michael L.: Experiences during cardiac arrest: myth or reality? (B11)
A1.53 Mastroli, Vincenzo: Calcium channel α2δ-1 subunit knockout causes diabetes due to impaired insulin release (B12)

Poster session III (SFBs & DKs)

SFBs & DKs

A2.3 Saha, Kusumika: Lanthanide-resonance-energy-transfer-based distance measurements in the mammalian glutamate transporter (excitatory amino-acid transporter) 3 (A1)
A2.11 Hofmaier, Tina: Direct inhibition of the norepinephrine transporter by the cocaine adulterant levamisole (A2)
X.6 Steinke, Thomas: Calmodulin kinase II regulates amphetamine-induced reverse transport at dopamine and serotonin transporters (A3)
X.27 Mayer, Felix Paul A.: Real-time uptake of fluorescent ASP via the organic cation transporter 3 (A4)
X.13 Jayaraman, Kumaresan: Conformational studies of the transmembrane helix 1A in the leucine transporter (LeuT) (A5)
X.18 Venkatesan, SantoshKannan: The aspartate transporter in motion: combining steered molecular dynamics with lanthanide-resonance-energy-transfer-based distance measurements (A6)
X.29 Yang, Jae-Won: Phosphorylation-mediated function of the serotonin transporter (A7)
X.24 Burtscher, Verena: CaV1.4 and CaV1.3 L-type calcium channels in the mouse retina (A8)
X.30 Bock, Gabriella: Comparison of the pharmacological properties of CaV1.3 L-type Ca2+ channels (A9)
A2.1 Daschil, Nina: The L-type voltage-gated calcium channel CaV1.2 α1 subunit in activated reactive astrocytes around β-amyloid plaques in an Alzheimer mouse model (A10)
A2.8 Lieb, Andreas: Molecular gating mechanism of CaV1.3 low-voltage-gated L-type calcium channels (A11)
A2.9 Stanikia, Ruslan: PDZ-domain scaffold proteins differentially modulate neuronal membrane expression of C-terminal splice variants of the human L-type calcium channel CaV1.3 (A12)
A2.4 Kummer, Kai: Investigating nucleus accumbens neuronal network activity by multi-electrode array recordings (A13)
A2.7 Gafar, Hend: Functional and physical interactions between P2Y receptors and ion channels (A14)
X.28 Treven, Marco: Ablation of parvalbumin-positive interneurons in the medial prefrontal cortex to model aspects of schizophrenia (B1)
**Posters, Wednesday, Sep 18, 2013 (poster board numbers in parentheses)**

**Poster session IV (Epilepsy)**

**Epilepsy**

**A1.3** Zangrandi, Luca: Activation of kappa opioid receptors reduces seizure activity in a mouse model of temporal lobe epilepsy (B1)

**A1.11** Jagirdar, Rohan: Changes in the expression of histone deacetylase (HDAC) 1–11 mRNAs in the hippocampus of a mouse model of temporal lobe epilepsy (B3)

**A1.27** Kubista, Helmut: L-type voltage-gated calcium channels in epileptiform activity (B5)

**A1.18** Assadpour, Elham: The KV7 channel openers retigabine and flupirtine exert anti-seizure activity independently of KV7 channels (B9)

**A1.20** Ruiß, Manuel: On the implication of L-type calcium channel-dependent conductances in hippocampal discharge activity (B11)

**Poster session V (Receptors & Transporters)**

**Receptors & transporters**

**A1.8** Beiersdorf, Johannes: α5-containing nicotinic receptors in animal models of neuropathic pain and response to nicotine (A1)

**A1.7** Ianosi, Bogdan Andrei: Levels of α5-containing nicotinic receptors in animal models of neuropathic pain (A2)

**A1.26** Feldbauer, Roman Vinzenz: Comparative models of GABA<sub>A</sub> receptors based on homologous pentameric ligand-gated ion channels co-crystallized with ligands (A3)

**A1.34** Ramerstorfer, Joachim: Unexpected properties of δ-containing GABA<sub>A</sub> receptors in response to ligands interacting with the α+β– site (A4)

**A3.1** Ben Haddou, Tanila: Opioid activities and antinociceptive properties of differently N-substituted morphinans (A5)

**A1.12** Hausott, Barbara: Effects of lysine mutants of fibroblast growth factor receptor 1 on axon growth (A6)

**A1.14** Jurský, František: Searching for active forms of sanguinarine inhibiting the glycine transporter GlyT1 (A7)

**A1.10** Miháliková, Andrea: Phosphomimetic mutation S605D affects the C-terminal sensitivity of mouse glycine transporter GlyT1b to calpain cleavage (A8)

**A3.15** Dönmez Cakil, Yaprak: Characterization of drug interaction of pore-exposed tyrosine residues (A9)

**A3.16** Sucic, Sonja: The puzzling C-tail and the part it plays in the folding and ER export trajectory of the serotonin transporter (A10)


**A3.18** Sohail, Azmat: Unfolding the structure of LeuT<sub>Ag</sub> employing luminescence resonance energy transfer (A12)

**A1.52** Beiranvand, Farahnaz: Acetylcholine release by nicotinic receptors in CNS (A13)
Posters, Thursday, Sep 19, 2013 (poster board numbers in parentheses)

Poster session VI (Cancer, Inflammation, Immune System)

Cancer, inflammation, immune system
A3.7 Salzmann, Stephan: Effect of statins on NF-κB in human metastatic melanoma cells (A1)
X.5 Wasinger, Christine: Simvastatin triggers apoptosis in metastatic melanoma cells via a specific prostaglandin (A2)
A3.13 Kulaksiz, Murtaza: Protein acetylation in human rhabdomyosarcoma and neuroblastoma cells induced by simvastatin (A3)
A3.23 Atil, Bihter: In vivo effects of statins on SH-SY5Y and RD cells (A4)
A3.22 Bellutti, Florian: The relevance of the CDK4/6–p16INK4A axis for the development of lymphoid leukemia (A5)
A3.24 Berger, Angelika: Exploring the druggability of STAT5a in BCR-ABL¹ leukemia (A6)
A3.21 Kazemi, Zahra: Pharmacological stimulation of hematopoietic stem cells (A7)
X.4 Stančić, Angela A.: Monoacylglycerol lipase promotes colitis and colitis-induced colon cancer (A8)
X.7 Radnai, Balázs: Role of prostaglandin D2 receptors in ulcerative colitis (A9)
X.14 Thell, Kathrin: Immunosuppressive mechanism and properties of circular plant peptides (A10)
X.21 Wang, Lime: Falcarindiol, isolated from Rhizoma et Radix Notopterygii, induces cholesterol efflux in THP1 macrophages (A11)
A4.2 Matzneller, Peter: Pulmonary surfactant inhibits killing of micafungin against Candida krusei (A12)
A3.8 Holzer, Michael: Anti-psoriatic therapy recovers high-density lipoprotein composition and function (A13)
A3.20 Bärnthaler, Thomas: Contribution of alveolar epithelial cells to the protective function of PGE2 in acute lung injury (A14)

Poster session VII (Endothelial, Epithelial, and Muscle Cells)

Endothelial, epithelial, and muscle cells
A3.5 Rubi, Lena: Functional properties of L-type calcium channels in ventricular cardiomyocytes from muscular dystrophy mouse models (B1)
A3.14 Plaikner, Martin: Role of ATP and electrical stimulation on the expression of muscle-specific genes (B3)
X.19 Rothauer, Peter: Ether lipid deficiency slows cardiac conduction in vivo (B5)
A3.2 Stojanović, Marko: Signaling mechanisms related to regulation of intracellular calcium concentration involved in vascular actions of serotonin and bradykinin on rat peripheral arteries (B8)
A3.3 Lornejad-Schäfer, Mohammed R.: Niclosamide regulates the cell membrane properties in an intestinal barrier model (B10)
A3.9 Mika, Johann K.: In vitro characterization of human epithelial tissue utilizing a microelectronic impedance sensor with microfluidic medium supply (B12)