*c*Z and especially its riboside to successfully induce and maintain cell division and to delay dark-induced leaf senescence in plants thus challenging contemporary notion of *c*Z isomers as unimportant adjuncts. Metabolism of [^{3}H] labeled *c*Z and *t*Z in tobacco cells and oat leaves revealed distinct metabolism of both isomers within each material as well as between the two species. In oat leaves, *c*Z was rapidly degraded to adenine (Ade), subsequently converted to adenosine (Ado) and efficaciously *O*-glucosylated. On the contrary, *t*Z was degraded to Ado and Ade and small amount of substrate was *N*-glucosylated in *N7* and *N9* positions. In tobacco BY-2 cells, *c*Z was not metabolized as effectively as in oat leaf segments. It was predominantly ribophosphorylated although less efficiently when comparing to *t*Z and degraded into Ade at slightly higher rate than trans-isomer. No [^{3}H] *c*Z ↔ *t*Z interconversion was observed during feeding experiments in either oat or tobacco. The presented data imply relevance of *c*Z-type CKs in plant metabolism and their potential role in control of plant development.

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P4–38
Induction of mitochondrial permeability transition (MPT) by iron in isolated rat liver mitochondria requires both NAD(P)H oxidation and iron import

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Mitochondrial permeability transition (MPT) plays an important role in necrotic and apoptotic cell death. MPT is induced by calcium and promoted by oxidative stress. *In vivo* the oxidative stress is often catalyzed by iron. In this study we investigated ability of micromolar iron to induce MPT in isolated mitochondria. According to literary data, Fe(II) over-loads antioxidant defence that shifts NAD(P)H/NAD(P) to oxidation, and the loss of reduced NAD(P)H promotes MPT opening. Iron can also be imported to mitochondrial matrix by calcium uniporter. Our isolated rat liver mitochondria were initially stabilized with EDTA and bovine serum albumine. For MPT induction they were energized by succinate or malate/pyruvate, and stimulated by addition of Ca or Fe(II). We measured mitochondrial swelling (light scatter), the inner membrane potential (fluorescent probe JC-1) and NAD(P)H oxidation (autofluorescence 340/465 nm). Both Ca and Fe(II) could induce cyclosporin A-inhibitable depolarization and swelling (MPT). Fe(II) induced MPT only in the presence of some residual EDTA which formed complex with iron catalyzing rapid oxidation of NAD(P)H. Effect of iron also required membrane potential and could be prevented by post-addition of membrane permeant, but not impermeant iron chelators. Iron was apparently needed only for induction of MPT, while its propagation continued through calcium cycling. We conclude that both iron import and NAD(P)H oxidation must occur simultaneously for MPT to occur. This observation can help to elucidate mechanism of iron toxicity, which may be involved in pathogenesis of several liver diseases where cytosolic iron sequestration fails, e.g. hemochromatosis and alcoholic liver disease.

P4–39
Neurotrophin 3 – Adaptation way to brain hypoxia induced by chronic obstructive bronchopneumopathy

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Background: Chronic obstructive bronchopneumopathy is a major cause of hypoxia. In the brain, secondary ischemia develops a complex signaling cascade, leading to fast necrotic cell death or apoptosis. While brain cells are challenged by this deleterious mechanisms, they activate innate protective programs, including synthesis of inflammatory cytokines and neuronal growth factors, members of neurotrophins family. Neurotrophins are peptides that act as growth or survival factors for specific neuronal populations. Experimental animal models showed that neurotrophin-3 (NT-3) was produced by glial cells as an adaptation response to hypoxia. The aim of this work was to begin the NT-3 study in patients with COBP.
Patients and Methods: Forty patients with confirmed COBP, treated in 'Marius Nasta' Hospital of Pulmonary Diseases Bucharest, were investigated using blood samples. NT-3 was measured using ELISA kits.
Results: Significant increase of NT-3 serum levels was obtained.
Conclusion: NT-3 up-regulation might represent an activating mechanism for neuronal survival in the injuried brain.

P4–40
Morphogenetic cell migration in 3D collagen matrices varies with growth factor signaling and matrix density

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Most research on cell migration has been carried out in serum-containing medium using rigid surfaces. Under these conditions, cells migrate; the surface remains stationary. When fibroblasts interact with collagen matrices, cell tractional force can couple either to matrix translocation or to cell migration, and the balance determines if the matrix moves or the cells move. Platelet-derived-growth-factor (PDGF) and fetal-bovine-serum (FBS) stimulate movement of human fibroblasts interacting with 1.5 mg/ml collagen matrices but by different mechanisms. With PDGF, cells move through the matrix. With FBS, cells contract the matrix and pull themselves closer together. As a consequence, fibroblasts remain individual in PDGF-containing medium but tend to form clusters in the presence of FBS. Clustering is fully reversible. Switching from FBS to PDGF results in cell migration and rapid cluster dispersion. Consistent with the importance of matrix contraction in clustering, blocking myosin-II inhibits FBS – dependent clustering but not PDGF-stimulated migration. On 1.5 mg/ml collagen matrices (stiffness ~9 pascals), initial spreading of fibroblasts takes place without formation of focal adhesions. If collagen matrix density is increased to 4 mg/ml (stiffness ~62 pascals), then focal adhesions form between fibroblasts and the matrix during cell spreading. With 4 mg/ml collagen matrices, in the presence of PDGF or FBS, cell tractional force couples to cell migration rather than matrix translocation. Consequently, cell clustering does not occur. These findings demonstrate differential morphogenetic cell migration controlled by the combination of growth factor stimulation and cell matrix density.