detection by Giemsa staining and by the use of an anti-Hp antibody. Histological assessment of the stomach was done at 6, 12 and 18 months.

Results: All 55 infected animals were Hp positive at termination. All animals in the Hp + YF476 group had normal macro- and microscopical findings in the stomach. Eight animals in the Hp group had macroscopically thickened oxyntic mucosa, 18 cases had oxyntic atrophic gastritis and various pathological changes and 11 cases showed ECL cell hyperplasia. Plasma gastrin was significantly higher in the Hp + YF476 group than in the Hp group (530 +/− 36 versus 164 +/− 16.5, $p<0.001$).

Discussion: Gastrin seems to be important for the inflammatory reaction to Hp infection. This may be due to its effect on the ECL cell, which releases histamine and other factors that may be involved in inflammation. Why not all infected animals in the Hp group developed gastritis is not known, but is similar to man where only a portion of infected individuals develops atrophic gastritis.

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Regulatory effects of orexin A on neuronal networks formation and activity in vitro

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Introduction: Orexin A (OXA) is a neuropeptide, produced by hypothalamic neurons, which regulates various brain activities, including wakefulness and higher brain functions like learning and memory. There is a growing interest in OXA's role in neurodegenerative diseases with respect to non-motor symptoms such as sleep-, attention- and cognitive- disorders. Recent studies in Parkinson's and Alzheimer's patients found lower concentrations of OXA in the prefrontal cortex and cerebro-spinal fluid. It is widely assumed that deteriorated cognitive processes are related to impaired network connectivity, but little is known about the effects of OXA on them.

Aims: To investigate the development of activity and connectivity in cortical networks chronically treated with OXA.

Methods: Dissociated cortical neurons of newborn rat were incubated for 3 weeks in medium supplemented with OXA. Network activity was recorded with multi electrode arrays. Additionally, after 1-, 2- or 3 week cultures were stained immunocytochemically for detection of the presynaptic marker synaptophysin.

Results: OXA treated cultures became spontaneously active 3–4 days earlier, the following activity increase was steeper and the plateau (reached after 3 weeks) was higher than in controls. Immunostaining revealed that the synaptic density was much higher in OXA treated cultures in all age groups.

Discussion: OXA has a strong stimulating effect on network formation and activity, the latter probably being a consequence of the accelerated synaptogenesis. These results indicate that drugs, based on OXA are potential candidates for prevention and treatment of disorders associated with neuronal connectivity and activity decline.

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Protective effects of vasoactive intestinal peptide in acute lung injury☆

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Introduction: Acute lung injury (ALI) is a common clinical disease. It involves lung cell activation and acute inflammatory injury which will seriously affect the respiratory function. To search the endogenous factors which can alleviate the respiratory dysfunction and play a protective effect in ALI was worthy of attention. Vasoactive intestinal peptide (VIP) is an important neuropeptide in lungs, we have confirmed VIP promote airway epithelial cell injury repair, and further observed the protective effect of VIP in ALI.

Aims: To observe the protective effect of VIP in ALI.

Methods: To increase the VIP content of Mice, pGC-FU-VIP recombinant lentivirus was transfected into the mouse. Respiratory function was analyzed by BUXCO, LDH activity, MDA content and SOD activity of lung were detected, TNF-α and IL-10 expressions were observed by ELISA and RT-PCR.

Results: (1) VIP increased breathing frequency, tidal volume, lung compliance and lower airway resistance, and reduced intrapulmonary leukocyte and protein exudation of BALF in ALI. (2) VIP can reduce LDH activity and MDA content, and increase SOD activity in ALI. (3) VIP can decrease TNF-α expression, and increase IL-10 expression in ALI.

Discussion: VIP can ameliorate respiratory function, improve intrapulmonary antioxidant capacity, block the cascade of inflammatory mediators, and ultimately play a protective effect in ALI.

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Is insulin secretion regulated by glucagon?

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Introduction: The intra-islet states that insulin regulates glucagon by suppression, but the role of glucagon in intraislet paracrine regulation is controversial.

Aims: This study aimed to unravel intraislet paracrine functions of glucagon.

Methods: In situ perfused mouse pancreases from wildtype mice as well as glucagon receptor knockout mice (M. Channon, New York) and a diphtheria toxin inducible alpha cell knock-down mouse strain infused with different glucose concentrations and arginine, glucagon, insulin and somatostatin. Insulin, glucagon and somatostatin were measured in effluent.

Results: Arginine increased both glucagon and insulin secretion in control mice from 6.7 ± 4 to peak levels of 95 ± 16 pmol/L (insulin). 15 mM glucose increased insulin secretion (114 ± 20 pmol/L) vs 3.5 mM (4 ± 2 pmol/L). gcg-R knockout mice had dramatically increased secretion of glucagon and decreased levels of insulin compared to controls. Glucagon in control mice dramatically increased insulin secretion. Diphtheria toxin destroyed 95% of the alpha cells and reduced insulin secretion (38 ± 4 pmol/L) vs controls (114 ± 24 pmol/L). Glucose stimulated insulin secretion was similar in control and KO mice.

Discussion: Our findings suggest that alpha cells control insulin secretion rather than the opposite. This is in keeping with recent discoveries regarding (human) islet microvasculature, showing beta cells covered by alpha cells receiving the blood supply. In rat perfusions performed in the lab, insulin at 10^{-7} M was without