

emission tomography (PET) scanning in monkeys before and after they moved from individual to group housing. All animals had similar levels of D2 receptors when housed independently, but after three months of living in groups, monkeys that had emerged as socially dominant exhibited increased D2 receptor levels. These receptors have been implicated in reward, reinforcement and addiction, and scientists found that animals with higher rank and higher levels of D2 receptors were less likely to self-administer cocaine than submissive group mates. This unique look at the interplay between environmental and biological substrates implies not only that dopamine receptor levels are a consequence of rank rather than a predisposing trait, but also that drug abuse behaviour can be influenced by social factors in a short amount of time. [Morgan, D. (2001) *Nat. Neurosci.* 5, 169–174] LO

Resistin-g insulin's effects



Obesity is a major risk factor for type 2 diabetes mellitus. The insulin resistance that characterizes

this disease can be treated with a group of drugs called thiazolidinediones. Stepan and colleagues exploited this property in an attempt to find the link between obesity and diabetes. They identified a new protein secreted by adipocytes, called resistin, that impairs glucose tolerance and antagonizes the effects of insulin. Treatment with thiazolidinediones decreases the production of resistin, indicating that this protein mediates the beneficial effects of this class of drugs. Resistin might represent a new target for the development of antidiabetic drugs. [Stepan, C.M. *et al.* (2001) *Nature* 409, 307–312] DC

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Letters

Don't forget Buchheim

In his interesting article published in a recent issue of *TIPS*, Brune [1] has given Oswald Schmiedeberg the credit of being the founder of pharmacology as an independent discipline, but this is not completely true. Unquestionably, Schmiedeberg is the scientist who brought worldwide recognition to this new science but it was Rudolf Buchheim who was the father of pharmacology. As Habermann [2] mentioned, Buchheim introduced two basic principles, which now appear self-evident to us: (1) the concept of a 'natural system for the classification of drugs' based on their mode of action; and (2) the definition of pharmacology as an independent science, from the point of view of both its philosophy and its methodological approach.

Buchheim (1820–1879) had no other teacher than himself. After he had accepted the chair of *Materia Medica*, *Dietetics*, *History and Encyclopaedia of Medicine* at Dorpat University, now Tartu State University (Tartu-Estonia), he established the first laboratory of pharmacology at this institute. This topic has been reviewed extensively by Habermann [2], Leake [3] and Muscholl [4]. In 1860 the *Pharmacologisches Institut* was created at Dorpat University to award Buchheim's effort in investigation [4]. It is important to observe that almost 100 papers came from Buchheim's laboratories (1847–1867), most of them written in Latin as doctoral theses, with only a few being published in journals. His pupils worked in many areas of pharmacology and nutrition, such as metabolism, alkaloids, anaesthetics, laxatives, anthelmintics, arsenical compounds and heavy metals. Schmiedeberg worked in Buchheim's laboratory during the preparation of his doctoral thesis entitled: '*Über die quantitative Bestimmung des Chloroforms im Blut und sein Verhalten gegen dasselbe*' [3]. In fact, Schmiedeberg succeeded Buchheim when he moved to Giessen in 1867, and stayed there until he himself went to Strasbourg to establish his famous laboratory in 1872. Schmiedeberg never forgot Buchheim as shown in a paper remembering him [5].

Schmiedeberg was a very important pharmacologist and the early development of pharmacology cannot be understood without him [1] but Buchheim should be recognized as the first pharmacologist. He also wrote one of the first papers devoted to supporting the role of pharmacology in the training of medical students [6]. If Schmiedeberg remembered Buchheim as his professor and probably also as a friend [4], why should we forget Buchheim?

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