the substrate and coenzyme (pyridoxal-5-phosphate) binding region and the histidine moiety susceptible to covalent modification by the enzyme activated irreversible inhibitor a-difluoromethylornithine (DFMO); 157-170: "Asp(Glu)-Glu-Leu-Met-Lys-Val-Ala-Lys(Arg)-Ala(Thr)-His-Pro-Lys-Ala-Lys" (possible variations in parenthesis).

Antibodies raised against various epitopes of this particular peptide may help to answer the question why *Tetrahymena* ODC has a similar K_{i} value for DFMO as *Trypanosoma* ODC but is almost insensitive to irreversible inhibition^{(10)}.

Antibodies against epitopes of the other peptides may help to decide whether degradation or modification processes are involved in the rapid inactivation of ODC or whether activation of preformed inactive ODC is the mechanism of the rapid stimulation of ODC - which is unlikely after preliminary cycloheximide inhibition assays^{(10)}.


W. Eichler and B. Schertel

**Regulation of Polyamine Biosynthesis by L-Arginine: A Common Regulative Principle in Eucaryotes**

Previous studies have shown that the activity of ornithine decarboxylase (ODC, EC 4.1.1.17), the regulatory key enzyme of polyamine biosynthesis, is regulated at three levels in the protozoa *Tetrahymena thermophila*^{(1,2)}: 1. the induction concomitant with growth stimulation; 2. the inactivation depending on polyamine excess; 3. the limitation of stimulation depending on the available substrate concentration (arginine/ornithine) independently of polyamine abundance.

The stimulation of growth starts a time program for ODC stimulation/inactivation which is modulated by substrate and product concentrations: L-arginine - and to a minor extent L-ornithine - concentrations in the medium influence ODC specific activity in a reciprocal relation; the lower arginine concentration, the higher is the ODC stimulation. Putrescine concentrations: L-arginine - and to a minor extent L-or- ninine - concentrations in the medium influence ODC specific activity independently of polyamine abundance.

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all crystals of 70S ribosomes. A series of complexes was designed, each of which mimics a stage in protein biosynthesis and contains ribosomes with limited motional freedom. Producing such complexes in quantities suitable for crystallographic studies is time consuming and requires significant sophistication, the level of which is determined by the nature of the mRNA. A simple complex of 70S ribosomes from Thermus thermophilus together with 1.5-1.8 equivalents ofphetRNAphe and a chain of about 35 uridines, was crystallized. Considering the reproducibility of their growth, their internal order and their shape, the crystals of the complex are superior to those of isolated ribosomes, thus showing that the complex is less flexible than the isolated 70S ribosomes.

Despite the marked improvement in the crystal order, this complex suffers from imperfections. Being a homopolynucleotide, poly(U) does not contain a powerful signal for attachment and may bind at random locations along its chain, and protrude into the solution in an uncontrolled fashion. Thus, complexes with heteropolynucleotides of defined sequences have been designed and are currently being produced in high purity and large amounts. Such complexes facilitate the construction of uniform populations, containing either one of the two main conformers of the elongation cycle, namely the pre- or the post-translational ribosomes.

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Functional Dynamics of Intracellular Ca-Compartments of 3T3 Mouse and Rat Embryo Fibroblasts

A certain subset of growth-stimulating factors (the "competence growth factors") may be characterized by their ability to induce a fast Ca-efflux (≤ 2 min) originating from an intracellular Ca-compartment (1). For 3T3 cells, these Ca-effluxes are specifically blocked by application of the so-called Ca-channel blockers (such as nifedipin or verapamil), which concomitantly inhibit cell proliferation (2).

We have extended this work with the following results:
1) Similar results pertain to rat embryo fibroblasts REF, for which epidermal growth factor (EGF) acts as a competence factor according to the criteria given above and is inhibited by the antagonist TMB-8.

II) For 3T3-cells, different Ca-channel blockers act selectively on Ca-effluxes elicited by different growth factors:
- Ca-efflux induced by vasopressin is not inhibited by TMB-8, 50% inhibited by nifedipine or verapamil (2), and 100% inhibited by flunarizine.
- Ca-efflux induced by fetal calf serum is not inhibited by TMB-8 but 100% inhibited by flunarizine.

We conclude that different signal paths and/or functional intracellular Ca-compartments may be differentiated by different Ca-channel blockers.


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A.A.H. Fischer, K. Müller and C. Scholtissek

Specific Inhibition of the Synthesis of Influenza Virus Late Proteins and Stimulation of Early, M2 and NS2 Protein Synthesis by 3-Deazaadenosine

3-Deazaadenosine (3DA-Ado) specifically inhibits the synthesis of late influenza virus A proteins, while it causes an overproduction of early proteins and of the non-structural proteins NS2 and M2. This effect can be significantly enhanced by homocysteine thiolactone. Except for the M gene, synthesis of viral mRNA is not significantly affected by 3DA-Ado. We conclude that 3DA-Ado acts via its homocysteine derivate by interfering with a specific posttranscriptional modification of viral mRNA and on splicing of specifically the M mRNA.

Other tested RNA viruses without a nuclear phase multiply normally in the presence of 3DA-Ado. In contrast to amantadine, which is another specific and potent inhibitor of influenza A virus replication, even under the most stringent conditions we completely failed to obtain any 3DA-Ado-resistant influenza virus variants.


E. Fischer, M. Wagner and R. Brossmer

Specificity of a lectin from Cepaea hortensis

The specificity of the sialic acid-binding lectin from the snail Cepaea hortensis, purified...