Subcellular Binding of Iodoacetic Acid and Interference with Apical Growth in *Neurospora*

E. W. Khandjian, C. Rossier and G. Turian
Laboratoire de Microbiologie générale,
3, place de l'Université, CH–1211 Genève 4

N. crassa was grown for 24 h in Vogel's medium N in the presence of iodo (2-^{14}C)-acetic acid (IAA). To investigate the fate of the alkylating agent in the cell, subcellular fractions obtained by differential centrifugations and ammonium sulfate precipitations were analyzed by sucrose and CsCl density gradient ultracentrifugation, acrylamide gel electrophoresis and TLC chromatography. Approximately 95% of the intracellular radioactivity was associated with TCA non-precipitable compounds in the cell-free extract. 60% of the acid-precipitable label was associated with soluble proteins, especially with glyceraldehyde-3-phosphate dehydrogenase (GAPDH). Membranous organelles retained the remaining 40% of the acid-precipitable label. In treated cultures, organelle-specific enzyme markers were shifted to a lower density in sucrose gradients indicating that IAA most likely renders certain membranous organelles fragile by its binding to –SH groups of structural proteins. With such a multi-locational IAA binding, it is difficult to find out which is the critical target that leads to the morphological effects induced by IAA. However, the well-established fact that the –SH groups are concentrated in the hyphal tips, suggests that it is at this topological site that the main disturbances occur. These should concern principally glycolysis through the inhibition of –SH containing enzymes (with GAPDH as a key enzyme) and therefore lead to the previously reported inhibition of vegetative growth and its reorientation toward conidial differentiation.

Protective Effect of Hyperimmune Serum Administered Orally to Rats Infected with *E. coli* Pathogenic for Man

D. Rivier and J. Sobotka
Institut de Biochimie, Université de Lausanne,
21, rue du Bugnon, CH–1011 Lausanne

Strain 23 (*E. coli* 078), isolated from the blood of a newborn baby having died of septicaemia, was revealed capable of causing the death of 7- or 8-day-old rats, inoculated orally with approximately 3 to $6 \cdot 10^8$ living bacteria. In 8 out of 9 cases, the pathogenic strain could be detected by directly plating the homogenized heart of the dead rat on the MacConkey agar. 2 h after inoculation, we began oral administration of hyperimmune serum obtained by immunizing a rabbit with strain 23 (agglutinating titer: $^1/_{2000}$). Treatment with 0.2 ml serum per animal and per day was continued for 4 days. The rats were kept with their mother during the 3 weeks of the experiment. In the control group, the rats were infected under identical conditions, but did not receive any serum. In a third group, the rats were given sterile nutrient broth instead of the inoculum. Treatment with serum remarkably lowered the proportion of rats dying during the experiment (from 54 to 8%). There were no deaths in the group of non-infected rats. Administration of serum produced an increase of 45% ($p < 0.001$) in the average weight of the rats, as measured 2 weeks after inoculation. However, treatment apparently did not affect survival of the pathogenic bacteria in the rectum: 3 weeks after inoculation, strain 23 was detected in approximately 85% of both treated and non-treated animals. Observation by electron microscopy of strain 23 showed the presence of fimbriae. Adherence of bacteria to the intestinal mucosa by its fimbriae probably represents a decisive step preceding the penetration of the microorganism into the circulation. The hyperimmune serum used in these experiments had an anti-fimbriae titer of $^1/_{1000}$. We intend to study the role of antibodies directed against fimbriae in the protective effect of hyperimmune serum.

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Stability of Orally Administered Bovine Immunoglobulines with High Antibody Level Against Pathogenic *E. coli* in the Intestine of the Infant

E. Leresche and G. Andrejevic
Biokema S.A.,
Route de Crissier 42, CH–1023 Crissier-Lausanne

The phenomena of passive immunity in the intestine are liable to play an important role in the defense of the organisms against intestinal infections particularly against those due to pathogenic *E. coli* (under the condition that the participating immunoglobuline antibodies have a sufficient stability in the intestinal medium). To test that stability, a preparation of bovine immunoglobulines, comprising the classes IgG, IgM and IgA and being provided with a high antibody titer against the most frequent pathogenic serotypes of *E. coli* of infantile gastro-enteritis have been administered to 10 infants during 6 consecutive days with the bottle. Eight of these children were between 1 week and 5 months old and 2 children were 18 months old. One sample of the stools has been collected of each child before the beginning of treatment to serve as control. 2 to 3 other samples have been collected 2–7 days after the beginning of the treatment. The search for the administered immunoglobulines has been made in aqueous extracts of the stools, on the one hand by the radial immunodiffusion method for IgG which quantitatively represented the most important administered fraction and on the other hand by determining the specific antibodies and their titer by agglutination in tubes against several serotypes. Out of 10 children, 9 gave clear positive results, both for the bovine IgG (24 samples tested, all positive, in the average several mg of IgG per g stools) and the titer of anticoli antibody measured by agglutination (22 samples tested, all positive between $^1/_5$ and $^1/_{1600}$). In the control samples of the stools, the specific anticoli titers were negative except two samples that were slightly positive for some serotypes and we found few bovine immunoglobulines or none at all. The stability of the orally administered bovine immunoglobulines of the preparation in the intestine of the infant is considered satisfactory since we have been able to find in the stools a part of the ingested immunoglobulines and have been able to prove their anticoli antibody specificity.

Activity of Rifampicin Against Experimental Listeriosis in the Mouse

W. A. Vischer and Ch. Rominger
Departement Forschung, Division Pharma,
Ciba-Geigy AG, Postfach, CH–4002 Basel

Studies by MANDELL (J. clin. Invest. *52*, 1673–1679, 1973) demonstrated that rifampicin, a semisynthetic rifamycin derivative, differed from other antibiotics in being capable of inhibiting and destroying intracellular bacteria.