with various degrees of resistance towards rifampicin arise by spontaneous mutation. One aim of the present study was to see whether there exists a correlation between the sensitivity of the bacteria and of the enzyme towards rifampicin. A large number of rifampicin resistant *E. coli* were obtained by incubating cells with increasing concentrations of the drug. From these, 6 mutants were selected which showed an increasing MIC (minimal inhibitory concentration), ranging from 10-fold that of the wild type to complete drug resistance. It could be shown that an increasing MIC was closely paralleled by a corresponding decrease in sensitivity of the RNA polymerase. None of the mutants showed an RNA polymerase with a rifampicin sensitivity comparable to that of the wild type, ruling out, for these mutants, alterations in permeability as a major cause of rifampicin resistance. In order to examine the reasons for the increased enzyme resistance, the association and dissociation kinetics of rifampicin with RNA polymerase isolated from the wild type and two moderately resistant mutants were measured. It could be demonstrated that the stability of the drug-enzyme complex drastically decreases in resistant mutants as compared to the wild type, whereas the rate of complex formation seems to be little affected.

Evidence for Intestinal Duovirus (Rotavirus) Infections in Switzerland

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The presence of duovirus (rotavirus) in Switzerland was investigated using different techniques. Nebraska calf diarrhea virus infected cells were demonstrated by fluorescent antibody technique in feces and in gut mucosa smears of scouring calves from different locations in the canton of Berne. The conjugate was prepared from a calf hyperimmunized with commercial anti reolike scours vaccine (Norden Labs). Duovirus particles were observed in negative contrast stained fecal preparations of the same animals. Attempts to isolate the agent in tissue culture resulted in only very few infected cells demonstrated by FA technique. The low yield was usually lost while passaging. One isolate was successfully adapted to Vero cells. Precipitating antibodies have been found in immunodiffusion tests in sera of all species (human, cattle, roe-deer, horse, swine, guinea-pig) tested so far. The soluble antigen used was prepared from tissue cultures infected with Swiss and foreign isolates. The same antigens proved to be highly anticomplementary and not suitable for CF tests. Neutralizing antibodies are common in cattle sera. Performing neutralization tests it has to be considered that virus adsorption is very slow, temperature dependent, and impeded by high protein contents of the media.

Detection of Specific IgM Neutralizing Antibodies in Naturally Acquired Sporadic Human Enterovirus Infections

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In order to improve enterovirus diagnostic work the author tried to demonstrate a so called primary immune response in a group of patient sera. 5 sera from patients (2 to 20 years old) were analyzed. From all these patients an enterovirus was isolated from a stool specimen. These enteroviruses have been isolated in a 2-year-period from different parts of the country. The following types have been isolated: Echo type 6, 11, 22 and Coxsackie B2 and B5. A serum sample of each patient from the time of virus isolation was fractionated by gelfiltration. Fractions for neutralization tests were chosen in which only one class of screened immunoglobulin (IgG, IgA, IgM) could be detected by the Mancini-Carbonara method. In all sera the whole neutralizing activity detected against the homologous isolated enterovirus was found in the IgM fraction. No IgM neutralizing activity could be recovered against the panel of heterologous enterovirus types. On the other hand most sera showed neutralizing activity against one or more enterovirus in the IgG fraction and in unfractionated sera as would be expected. From the viewpoint of specificity and reproducibility the findings are encouraging enough for us to analyze a set of sera from patients where no enterovirus can be recovered and where an enterovirus etiology is presumed.

Genetic Relationship Between Two Poxviruses Determined by Restriction Analysis of their DNAs

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The giant genomes (185,000 basepairs approx.) of two biologically closely related poxviruses (Vaccinia strain Elstree and Cowpox strain Brighton, red mutant) were cleaved with the restriction enzymes *Eco*RI and *Hind*III. A great variety of specific DNA fragments, ranging in size from 46,000 to 48,000 basepairs and less could be separated from each other by specially adapted agarose gel electrophoresis techniques. Addition of the sizes of the separated *Hind*III restriction fragments confirmed the genome size determined by electron-microscopy (GESHELIN and BERNS, J. molec. Biol. *88*, 785, 1974). *Hind*III digestions of Vaccinia and Cowpox DNA yielded 13 and 17 easily distinguishable fragments, respectively, of which 5 were identical in size in both DNAs. *Eco*RI cleavage resulted in at least 30 different fragments, at least 9 of which were common to both DNAs, again indicating relatedness between the two DNA sequences. The actual base sequence homology was estimated to be about 90%.

Mitochondrial Functions in Semliki Forest Virus Infected Cultures of Chick Embryo Fibroblasts

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Monolayer cultures of chick embryo fibroblasts were infected at a multiplicity of 20 plaque forming units/cell. 5, 10, 15 and 20 h post infection cells were harvested. ADP/O quotients, acceptor control ratios and oxygen consumption/mg protein of isolated mitochondria were determined (substrates: malate-pyruvate, α-ketoglutarate, β-hydroxybutyrate and succinate). Ca/O quotients, acceptor control ratios and oxygen consumption/mg protein of intact cells were also measured with the Clark electrode (substrate: succinate). Both functional para-