carbohydrate coat, containing sialic acid among other chemical constituents, cannot be related to morphological findings.

*Zusammenfassung.* An der Oberfläche isolierter Glomerulus-Basalmembranen des Schweins konnten durch Gefrierätzung und durch Negativkontrastierung unregelmässig verteilte Partikel nachgewiesen werden. Sie werden als Reste der Glycocalyx von Endothel- beziehungsweise Epithelzellen angesehen und zeigen einen partikulären Aufbau dieser Kohlenhydratschicht an.

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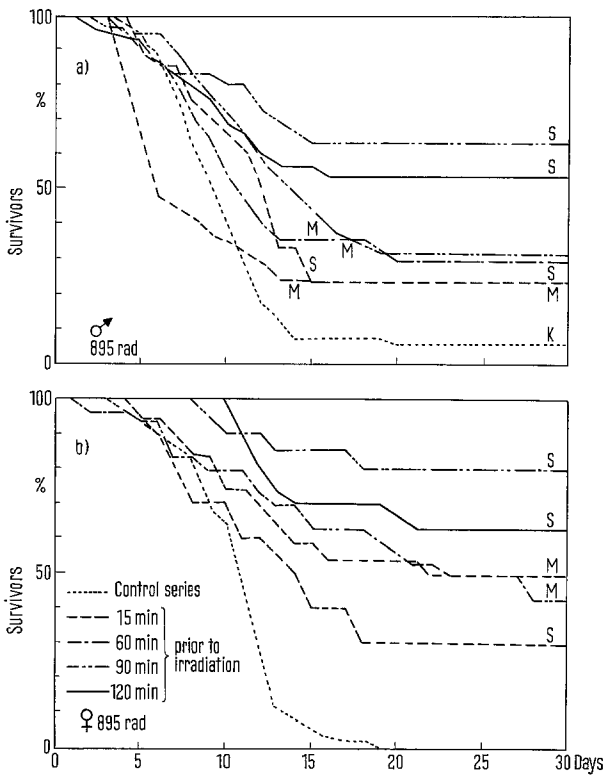
## The Radioprotective Effects of Psychotropic Drugs

Our earlier investigations showed that psychotropic drugs (neuroleptics) like the benzodiazepines Librium and Valium, or the thioxanthene Taractan, depress body temperature in mice[1] and protect mice against lethal doses of X-rays[2]. Thymoleptics proved to be ineffective[3]. The following neuroleptics have now been included in these studies: Melleril® (Thioridazin; 3-Methylthio-10[β-1'-methyl-2'-piperidyl)-ethyl]-phenothiazine; manufacturer Sandoz), Lidanil® (Mesoridazin; methyl-1-[methylsulfinyl-2-dibenzothiazinyl-10)-2-ethyl]-2-piperidine; manufacturer Sandoz), Fluanxol® (Flupenthixol; 2-trifluormethyl-9-[3-(4-(2-hydoxyethyl)-1-piperazinyl)-propyliden]-thioxanthene; manufacturer Lundbeck) and Sordinol® (Clopenthixol; 2-chlor-9-[3-(4-(2-hydroxyethyl)-1-piperazinyl)-propyliden]-thioxanthene; manufacturer Lundbeck). The compounds have been kindly supplied by the industrial firms.




Percentage survival of male (a) and female (b) GP-Swiss mice (ordinate) after γ-irradiation (once with 895 rad) within 30 days (abscissa). Untreated control series and animals pretreated with several doses of neuroleptics: Melleril (M), 18.75 mg/kg; Sordinol (S), 15 mg/kg applied once 15 min before irradiation or at the time indicated. Average number of animals in each experimental series, 30–40; in the control series, 50–70. The detailed statistical evaluation according to the $\chi^2$-test will be presented elsewhere[4].

The mice (GP-Swiss, both sexes, weight ~25 g) were pretreated by i.p. injection of the compounds dissolved in Ringer's solution (0.5 ml/20 g body weight). Whole-body irradiation was carried out with γ-rays of a $^{60}$Co-source, the doses applied once were 715 or 985 rad, respectively. Dose rate: 150 rad/min. Irradiation started either 15 min after injection of the drug or at another time (indicated in the results).

Some results on Melleril are depicted in Figure (a). It can be seen that after the pretreatment with the dose of 18.75 mg/kg there is a significant improvement of the percentage survival results, as compared with the control series, i.e. the survival of the untreated animals. Sordinol (15 mg/kg; Figure, b) is able to enhance the percentage survival even more, up to 80%. Similar results are obtained with Fluanxol (10 mg/kg), whereas Lidanil exhibits no radioprotective effect. Since all the compounds, with the exception of Lidanil, cause a decrease in metabolism ($O_2$-uptake) and a depression of body temperature, the amount of which increases with time, it is evident that radioprotection is, at least partly, dependent upon these processes: Figures (a, b) reveal that in general the more time elapsed between injection and irradiation, the better the radioprotective effect. Similar findings, indicating also a certain correlation between hypothermia, hypometabolism (both in common being an expression for hypoxia in the radiosensitive organs) and amount of radioprotection have recently been made with cholinomimetics[4,5].

*Zusammenfassung.* Die Neuroleptika Melleril®, Sordinol® und Fluanxol® senken bei Mäusen dosisabhängig Körpertemperatur und $O_2$-Verbrauch und erhöhen bei i.p. Applikation vor sub-letaler oder letaler Bestrahlung mit γ-Strahlen den Prozentsatz Überlebender innerhalb des Zeitraums von 30 Tagen signifikant (und zwar bis über 80% bei 0% in den Kontrollreihen).

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