Frequency of sex-linked lethals in the progeny of ♂♂ which had been exposed to the same dose of mustard gas in (*a*) nitrogen, (*b*) oxygen.

Exp.	*Nitrogen*			*Oxygen*		
	No. chromosomes tested	Lethals		No. chromosomes tested	Lethals	
		No.	%		No.	%
I	415	26	6·2	602	32	5·3
II	687	68	9·9	520	54	10·4

In spite of all the precautions used it is not possible to affirm that the amount of mustard gas administered in the two series of one experiment was identical. However, the difference can have been only slight, and it seems safe to conclude that, should oxygen exercise an effect on the production of mutations by mustard gas, this effect cannot be of the same order of size as observed for X-radiation. This lends support to the view which considers that the contrasting results obtained with irradiation indicate that oxygen is involved specifically in the production of mutations by X-rays.

We want to acknowledge gratefully the help of the Honours and Diploma class which in the spring term 1951 carried out the genetical part of the first experiment.

C. AUERBACH and H. MOSER

Institute of Animal Genetics, University of Edinburgh, May 31, 1951.

Zusammenfassung

Senfgasbehandlung von *Drosophila*-Männchen wurde in einer Atmosphäre von reinem Sauerstoff und von reinem Stickstoff vorgenommen. Die mutagene Wirkung erwies sich quantitativ als unabhängig von dem benutzten reinen Gas. Dieses Resultat stellt einen Gegensatz dar zu ähnlichen Versuchen mit Röntgenstrahlen und deutet auf einen Unterschied in der primären mutagenen Wirkung dieser beiden Agentien hin.

The Use of Solvents in Tissue Cultures

In a series of investigations we have tried to evaluate in tissue cultures the antimitotic activity of some quinones and related compounds[1]. So far, we have used for this purpose only water-soluble substances. No adequate method for water-insoluble substances was available. Previous investigators have tried to overcome this difficulty by working with acetone or alcohol as solvents. Both solvents may influence the cells in mitosis and, or resting cells, as pointed out by v. MÖLLENDORFF[2] and by BUCHER[3], and in spite of a number of controls the results remain unsatisfactory in tissue cultures.

As we had to deal repeatedly with water-insoluble substances our experiments remained incomplete. We had to look, therefore, for ways of filling the gaps of our investigations. A suitable solvent was found in ethylene glycol monoethylether (Cellosolve). We combined it with gum ghatti, introduced by FOLIN[4], for biochemical work and used more recently by ANSON[5] and by MIRSKY[6].

We dissolved the substance to be tested in Cellosolve, added the same volume of a preparation containing 2% of sterile gum ghatti (B.D.H.) to give a 2×10^{-3} M solution of our compound. The mixture was diluted with sterile Tyrode fluid to a molar concentration of 2×10^{-5} which was mixed 1:1 with embryo extract. This was the highest concentration used in tissue cultures with these compounds. It contained the substance at 1×10^{-5} M concentration, further 0·25% Cellosolve and 0·25% of a 2% solution of gum ghatti.

Controls carried out in tissue cultures of chick fibroblasts with a mixture containing 0·25% Cellosolve and 0·25% of a 2% solution of gum ghatti gave no inhibition of mitosis, and no abnormal dividing cells or resting cells were observed. In contrast the corresponding mixtures prepared with acetone instead of Cellosolve showed a great number of clumped metaphases, some fragmentations and undivided telophases.

A number of water-insoluble substances have been tested in tissue cultures with the described method. Satisfactory results were obtained. These experiments will be reported elsewhere.

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E. FRIEDMANN and (Mrs.) I. SIMON-REUSS

Department of Radiotherapeutics, University of Cambridge, England, May 9, 1951.

Zusammenfassung

Für die Prüfung wasserunlöslicher Substanzen in Gewebskulturen hat sich eine Lösung der Substanzen in Äthylen-glykol-monoäthylester (Cellosolve) und Zusatz des gleichen Volumens steriler 2%iger Gummi-ghatti-Lösung bewährt. Die Arbeitsweise zur Herstellung entsprechend verdünnter Lösungen, wie sie in Gewebskulturen benutzt werden, wird beschrieben.

Purines libres et mononucléotides dans l'embryon de batracien

De récentes observations[1] semblent confirmer une hypothèse émise par BRACHET[2] selon laquelle les phénomènes d'induction, chez les embryons de batraciens, seraient accompagnés d'une migration d'acide ribonucléique de l'inducteur vers le neuroblaste; cet acide nucléique se déplacerait en liaison avec des structures cytoplasmiques et non sous la forme de mononucléotides. Il nous a paru utile cependant de rechercher si, au stade du développement où se fait l'induction, il ne serait pas possible de déceler une libération de mononucléotides.

Après quelques essais, nous avons adopté une technique fort simple de dosage, basée sur l'absorption dans l'ultra-violet des purines ou composés puriques acido-solubles et sur l'analyse de ces substances par chromatographie sur papier. Les embryons sont homogénéisés et extraits deux fois à l'acide perchlorique 1% à 0°C. Cet extrait brut, même après centrifugation, présente toujours un léger trouble qui ne disparaît qu'après une agitation vigoureuse avec un égal volume de chloroforme. Nous avons pu vérifier qu'au cours de cette opération la totalité des purines reste dans la phase aqueuse. Le spectre d'absorption de ces extraits est déterminé, entre

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