Work on bacterial survival has shown that the visible light reduces the UV effect to where it would be at a lower dose of UV (dose reduction factor, DRF). It was felt that cleavage delay might also show a constant DRF. From the limited successful experiments, this does appear to be the case.

Different combinations of cells treated with UV, VL and short pulses of tritiated thymidine (TdRH³) and normal cells were collected to study 1) the normal mitotic schedule, 2) the phase of mitosis most affected by UV, and 3) the effect of UV on the incorporation of TdRH³.

The Mechanism Of Diamox Effect On Acid-Base Relations

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Maren and co-workers have demonstrated that carbonic anhydrase inhibition leads to the development of extracellular respiratory acidosis. The rise in bicarbonate concentration seen under these circumstances is a compensatory mechanism. To what extent the uncatalyzed reaction is capable of permitting normal cellular gas exchange generally is not established. Maren holds that the carbonic anhydrase catalyzed reaction is only decisive in certain special areas (gill, kidneys). If this hypothesis is correct, then Diamox administration should lead to parallel changes in extracellular and intracellular pH. Whereas if the catalyzed reaction is critical in most cells, administration of Diamox should lead to relative intracellular acidosis as compared with pH changes occurring in extracellular fluid.

To test this hypothesis, simultaneous measurements of extracellular and mean whole body intracellular pH were performed in the dogfish under control circumstances and following the intravascular injection of 100 mg. of Diamox.

Following Diamox administration in five experiments, plasma pH fell from 7.59 to 7.36 with a $\triangle pH$ of -0.38. Intracellular pH fell from 6.98 to 6.63 with a $\triangle pH$ of -0.32. Since Diamox does not produce relative intracellular acidosis, it appears that generally cellular gas exchange is relatively independent of carbonic anhydrase.

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Hydrogen Ion Metabolism In The Dogfish

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It has been shown that urinary pH in the dogfish is essentially independent of extracellular pH. This suggests that renal mechanisms are relatively unimportant in the regulation of acid-base balance in this animal.