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**DIHYDROFOLATE SYNTHETASE ACTIVITY IN  
PNEUMOCYSTIS CARINII AND TOXOPLASMA GONDII**

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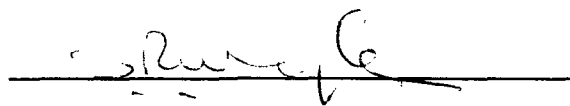
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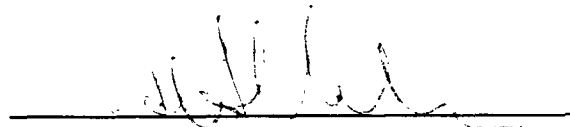
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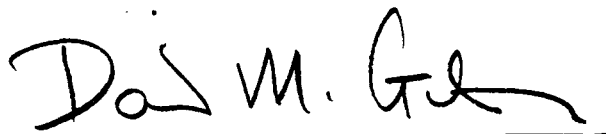
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## DHYDROFOLATE SYNTHETASE ACTIVITY IN

### PNEUMOCYSTIS CARINII and TOXOPLASMA GONDII

Both Pneumocystis carinii and Toxoplasma gondii are known to convert p-aminobenzoic acid and pyrophosphorylmethyldihydropteridine to dihydropteroic acid by the enzyme dihydropteroate synthase and dihydrofolic acid to tetrahydrofolic acid by the enzyme dihydrofolate reductase. Nevertheless, dihydrofolate synthetase has never been demonstrated in either of these organisms.

In order to determine if P. carinii and T. gondii have the dihydrofolate synthetase enzyme (DHFS), a folate-agarose affinity column was used to purify this activity from the crude enzyme extract. When tested by a radioassay using C<sup>14</sup>-glutamic acid and dihydropteroic acid, purified DHFS had higher activity than the original crude enzyme extract. More than 113 times the DHFS activity was observed after purification in P. carinii and more than 135 times the DHFS activity after purification in T. gondii. These results show that (1) dihydrofolate synthetase is present in P. carinii and T. gondii, and (2) the use of a folate-agarose affinity column not only purifies the DHFS enzyme, but also enhances the activity of the enzyme by possibly causing the elimination of an inhibitor or some enzymatic activity that was capable of degrading the substrate of the enzyme.

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