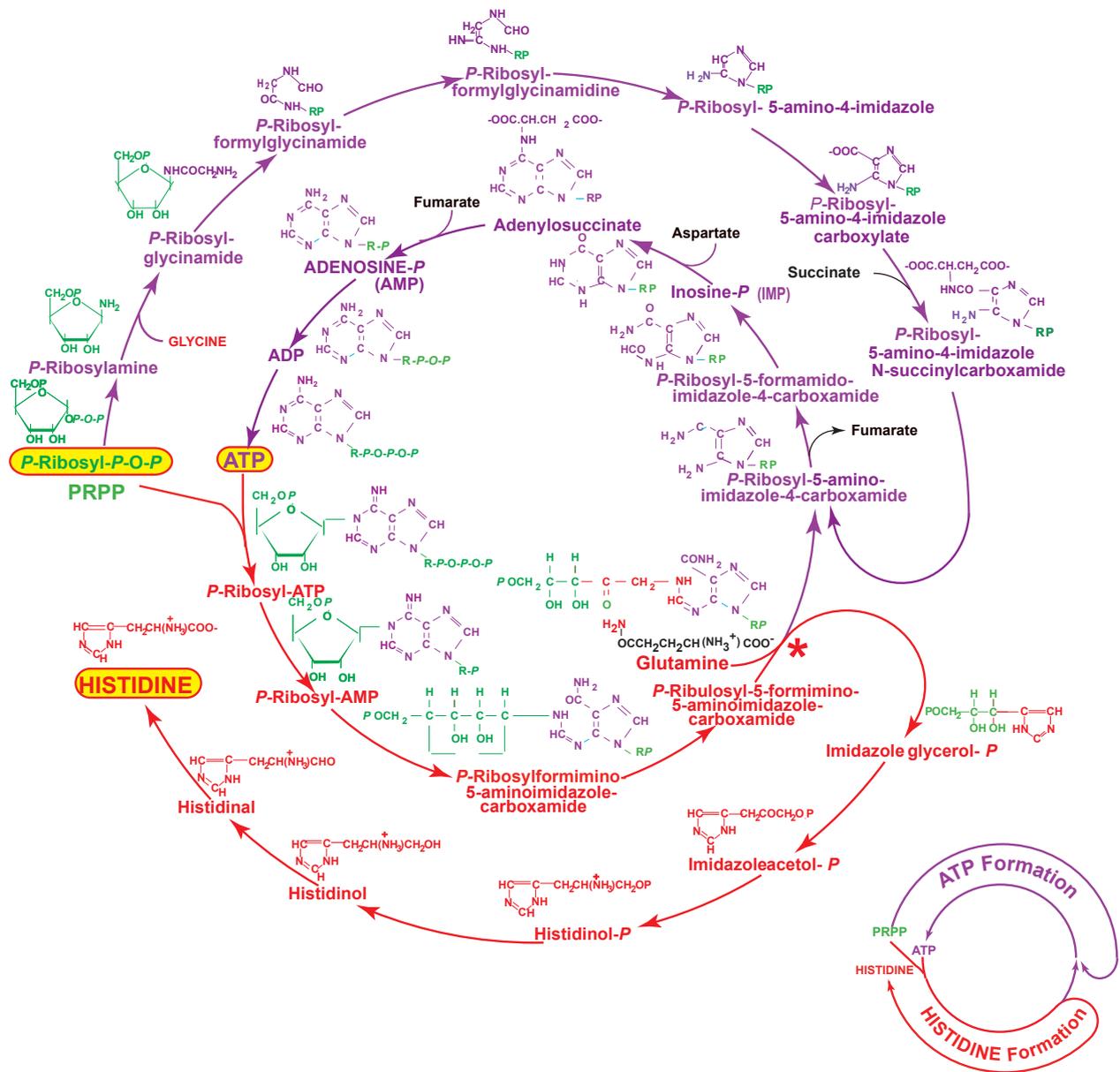


ATP & HISTIDINE INTERRELATIONSHIPS

A CLUE TO PRE-HISTORIC "BIO"- CHEMISTRY ?



Histidine and purines have a unique and fascinating interrelationship. They both originate from the same compound - PRPP. Both are characterised by the heterocyclic imidazole group. ATP is involved in the synthesis of histidine, not as a source of energy but as a supplier of one each of its carbon and nitrogen atoms. One of the intermediary reactions () involves the splitting of the molecule into TWO imidazole fragments, one of which becomes the basis of the histidine molecule while the other leads to the re-formation of the ATP - an ATP Cycle ! Since this ATP feeds into a cycle, *de novo* ATP must be derived from PRPP in the usual way shown in the top (Purple) pathway.

The imidazole component of the histidine molecule is often a major influence in the active site of an enzyme. Could the imidazole component of purines have a similar activity? Some RNAs (Ribozymes) are known to be catalytic. Is this a clue to a pre-historic "RNA World" responsible for catalysis before the evolution of the "Protein World" ?