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Periactin

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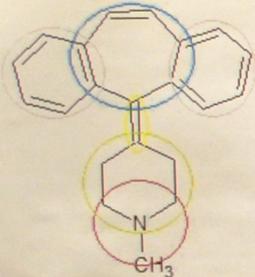
PERIACTIN

WATER SOLUBILITY

1g of Periactin is soluble in 257mL of water (H₂O). If we assume that anything over 1g solute/100mL water @ 25 degree Celsius is considered soluble in water, then Periactin is insoluble in water.

FUNCTIONAL GROUPS

The functional groups in Periactin are highlighted and listed below along with their solubility in water and whether they are acidic, neutral, or basic in nature.



Yellow: Alkene – hydrophobic – neutral
 Blue: Cycloalkene – hydrophobic – neutral
 Violet: Aromatic – hydrophobic – neutral
 Red: Amine (tertiary) – hydrophilic – basic
 Green: Cyclo – hydrophilic – basic

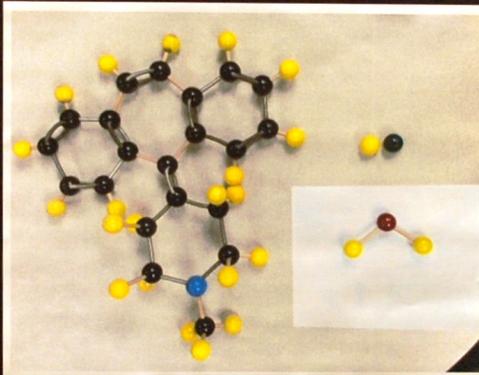
The ratio of hydrophobic functional groups to hydrophilic functional groups is 3:2. The majority of the functional groups in Periactin are hydrophobic which cancel out the hydrophilic groups. This makes the overall structure hydrophobic and insoluble in water. This is supported by the fact that, according to the numbers, Periactin is not soluble in water, making it hydrophobic.

NAMES AND CLASSIFICATIONS

The generic name of Periactin is CYPROHEPTADINE HYDROCHLORIDE. The drug is also available under the trade name of VIMICON. Its drug classifications are as an antihistamine or an antipruritic.

LABELED AND UNLABELED USES

The labeled uses for Periactin are for symptomatic relief of various allergic conditions. In addition, Periactin can also be used for the following unlabeled uses: Cushing's disease, carcinoid syndrome, vascular headaches, and as an appetite stimulant.



MOLAR MASS

The molar mass of the drug is the combined mass of all of its atoms. In the case of Periactin, using the chemical formula, the atoms are as follows:
 $C_{21}H_{22}N.Cl.N\frac{1}{2}H_2O$.

C = Carbon. Molar mass of 12.0g x 21 atoms = 252g
 H = Hydrogen. Molar mass of 1.01g x 22 atoms = 22.2g
 Cl = Chlorine. Molar mass of 35.5g x 1 atom = 35.5g
 N = Nitrogen. Molar mass of 14.0g x 1 atom = 14.0g
 H = Hydrogen. Molar mass of 1.0g x 3 atoms = 3.0g
 O = Oxygen. Molar mass of 16.0g x 1.5 atoms = 24.0g
 Using our molar mass formula, by adding all of the atoms together you get:

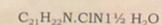
$$252.0 + 22.2 + 35.5 + 14.0 + 3.0 + 24.0 = 350.7$$

According to the literature, the official molar mass of Periactin is 350.89g.

CHEMICAL NAMES AND FORMULAS

The chemical name for Periactin is: 4-(5H-Dibenzo[a,d]cyclohepten-5-ylidene)-1-methylpiperidine; 1-methyl-4-(5H-dibenzo[a,d]cycloheptenyldene)piperidine; 5-(1-methylpiperidylidene-4)-5H-dibenzo[a,d]cycloheptene; 1-methyl-4-(5-dibenzo[a,e]cycloheptatrienyldene)piperidine.

The chemical formula of Periactin is:



PERIACTIN'S INTERACTION WITH THE BODY

Periactin is ingested PO, which means "per orally" or through the mouth, in pill form. Once inside the body, Periactin is absorbed into the body through the gastro-intestinal tract (the intestines), allowing the medicine to reach the rest of the body. Once the drug has been absorbed by the intestines, the liver will then metabolize the drug, processing it so it can be used by the body.

After being processed, the Periactin, an anti-histamine, takes as many of the serotonin and H1-receptor sites that it can before the histamines in the body can take them and give the body negative side effects. When all of those steps are complete and the Periactin has been ingested by mouth, absorbed by the intestines, processed by the liver, and used by the body to take as much serotonin and H1-receptor sites as it can before the histamines do, the drug is then eliminated from the body through the urine.

DOSING

Periactin is available in 4mg tablets. For various allergic conditions, the dosing recommendations are 4 milligrams of Periactin by mouth, three times a day. If specified by your doctor, take it four times a day. The daily dose, depending on the doctor's orders, will be 4-20 milligrams per day. Do not take more than half a milligram per kilogram of body weight a day. For instance, if you weigh 150 pounds, that is equal to 68 kilograms. Do not take more than 34 milligrams (50% of your body weight in kilograms) of Periactin per day, as 34 milligrams would be your maximum dose.

In order to find out how many molecules of Periactin are in each of the smallest doses available, 4mg, the following conversion is used:

$$4mg \times 1g/1000mg \times 1 \text{ mole} / 350.89g \times 6.02 \times 10^{23} \text{ molecules} / 1 \text{ mole} = 6.86 \times 10^{18} \text{ molecules in each } 4mg \text{ dose.}$$

As each tablet comes in 4mg doses, and each dose is typically 4mg, the conversion table for tablets to dose is:

$$4 \text{ mg} \times 1 \text{ tablet} / 4 \text{ mg} = 1 \text{ tablet per } 4mg \text{ dose.}$$

1. Wilson B. A., Shannon, M. T., & Shields, K. M. (2013). Cyproheptadine Hydrochloride. In *Pearson Nurse's Drug Guide 2013* (pp. 384-385). Upper Saddle River, NJ: Pearson Education, Inc.

2. (2013). Cyproheptadine Hydrochloride. In O'Neil, M. J., Heckelman, P. E., Dobbelaer, P. H., & Roman, K. J. (Eds.) *The Merck Index: An Encyclopedia of Chemicals, Drugs, and Biologics* (pp. 495-496). Cambridge, UK: Royal Society of Chemistry.

3. PERIACTIN MSD 62 (Periactin 4 mg, 10-d). PERIACTIN MSD 62 PSE. Retrieved March 18, 2014, from <http://www.drugs.com/imprints/periactin-msd-62-662.html>.

4. Timberlake, K. C. (2012). *Chemistry: an introduction to general, organic, and biological chemistry* (11th ed.). Upper Saddle River, NJ: Prentice Hall.