CLAIMS

1.) Gold nanocrystals in water comprising:

gold nanocrystals having surfaces which are substantially free from organic impurities or films; and

the gold nanocrystals have at least one spatially extended low index crystal plane selected from the group consisting of {111}, {110}, and {100} and their equivalents, wherein said gold nanocrystals and water form a suspension which has a pH of between 4 to 9.5, and a zeta potential of at least -20mV.

2.) The gold nanocrystal of claim 1, wherein the nanocrystal is less than 20 nm in its longest dimension.

3.) The gold nanocrystal of claim 2, wherein the nanocrystal comprises a shaped crystal of at least one of a tetrahedron and decahedron.

4.) The gold nanocrystal of claim 1, wherein the nanocrystal is made by a process comprising electrochemistry in water.

5.) The gold nanocrystal of claim 3, wherein a plurality of shaped crystals are suspended in water.

6.) The gold nanocrystal of claim 5, wherein the percent of said shaped crystals in said water is 5- 35%., thereby forming said suspension.

7.) The suspension of claim 5, wherein the percent of said shaped crystals in said water is 5-35%.

8) The suspension of claim 7, wherein both shaped crystals comprising tetrahedrons and decahedrons are present.

9.) The suspension of claim 7, wherein both shaped crystals comprising tetrahedrons and decahedrons are present.

10.) The suspension of claim 9, wherein both shaped crystals comprising tetrahedrons and decahedrons are present in a range of 15% - 50%.

11.) The suspension of claim 10, wherein said shaped crystals have an average crystal size of less than 20nm.

12) A suspension of gold nanocrystals in water comprising:

gold crystals having a mode particle size of not greater than 20 nm;

tetrahedral-shaped crystals and decahedral-shaped crystals present in a combined amount of 16-66 percent by number relative to other nanoparticles in said water; said suspension has a pH of between 4 to 9.5, and a zeta potential of at least -20mV; and

said crystals having surfaces substantially free from organic impurities or films.

13.) The suspension of claim 12, wherein said surfaces are substantially completely free from organic impurities or films.

14.) The suspension of claim 12, wherein said surfaces are completely free from organic impurities or films.

15.) The suspension of claim 14, wherein said crystals are present in an amount of at least 30%.

16.) The suspension of claim 14, wherein said crystals are present in an amount of at least 40%.

17.) The suspension of claim 14, wherein said crystals are present in an amount of at least 5 micrograms per milliliter.

18.) The suspension of claim 12, wherein said crystals are present in an amount of about 2 - 100 micrograms per milliliter.

19.) The composition of claim 12, comprising utilizing said composition for the treatment of arthritis.

20) The composition of claim 12, comprising utilizing said composition for the treatment of multiple sclerosis.

21.) The composition of claim 12, comprising utilizing said composition for the treatment of at least one indication selected from the group consisting of inflammatory conditions, chronic inflammatory conditions, autoimmune conditions, hypersensitivity reactions and cancerous diseases or conditions.

22.) The composition of claim 12, comprising utilizing said composition for the treatment of any disease where MIF is indicated.

23.) A method for growing gold nanocrystals in water comprising:

Adding at least one processing enhancer to said water;

Contacting at least one set of gold electrodes with said water;

Applying an AC voltage to said at least one set of gold electrodes to permit gold nanocrystals to grow into a shape of at least one shape selected from the group consisting of a tetrahedron and decahedron, thereby forming a suspension, which said suspension has a pH of between 4 to 9.5, and a zeta potential of at least -20mV.

24.) The method of claim 23, wherein said gold nanocrystals have a mode particle size of not greater than 20 nm.

25.) The method of claim 23, wherein said AC voltage comprises a voltage of 20 – 2000Volts.

26.) The method of claim 23, wherein said AC voltage comprises a voltage of 100 – 300Volts.

27.) The method of claim 23, wherein said water in contained in a trough member.

28.) The method of claim 27, wherein said water continuously flows through said trough member when said AC voltage is applied.

29.) The method of claim 28, wherein said water that continuously flows through said trough member exits trough member with a pH of at least 8.

30.) The method of claim 23, wherein no organic compounds are added to said water.

31.) Use of the composition of claim 12 in the manufacture of a medicament for the treatment of arthritis.

32) Use of the composition of claim 12 in the manufacture of a medicament for the treatment of multiple sclerosis.

33.) Use of the composition of claim 12 in the manufacture of a medicament for the treatment of at least one indication selected from the group consisting of inflammatory conditions, chronic inflammatory conditions, autoimmune conditions, hypersensitivity reactions and cancerous diseases or conditions.

34.) Use of the composition of claim 12 in the manufacture of a medicament for the treatment of any disease where MIF is indicated.

35.) The composition of claim 12 for use as a medicament.