

Puzzle

Descriptive Chemistry

1. When this anion **1-I** combines with **2-A** it precipitates from an aqueous solution. The same anion when combined with **2-G** or **7-A** remains soluble.
2. This cation **6-D** plays a key role in enhancing the taste of French fries (and other foods we should restrict).
3. Most compounds of this common anion **9-D** are insoluble but with the cation **4-F** the compound is described as “soluble by hydrolysis.”
4. This anion **8-C** hydrolyzes H_2O to yield a strongly basic solution.
5. When this anion **4-E** combines with **7-B** it forms a black solid.
6. This anion **7-G** reacts with H_2O to yield a smelly, basic solution.
7. If you add two electrons to **3-I** you form a substance used extensively by the Romans in carved chalices.
8. One type of kidney stones forms from **2-H** and this anion, $\text{C}_2\text{O}_4^{2-}$, oxalate found in chocolate.
9. If this cation **4-F** is combined with this anion **5-E** you get a “medical milkshake.”
10. As **6-F** reacts with this cation, **4-A** the solid that first precipitates redissolves as a complex anion.
11. The combination of **6-E** with **3-A** occurs in nature to yield galena.
12. The solid from this cation **7-E** and this anion **3-H** was once used to pay Roman soldiers.
13. One equivalent of **3-C** reacts with two equivalents of **6-I** to form a solid that is often used to prevent ice formation on sidewalks.
14. Combined with **9-A** this cation **8-I** is excessively consumed in the U.S.
15. Surprisingly, this very abundant metal cation **7-I** has no known essential biochemical function in any living system.
16. In combination with this anion **1-F** this cation **4-F** is thought to act as ballast in certain marine bacteria.
17. Combine this ion **3-C** with PO_4^{3-} and **6-F** simultaneously to form bone.
18. Before the use of the Berthollide titanium dioxide this cation **4-C** was extensively used in the formation of a white paint pigment.
19. This cation **6-G** is the key component of a trigger-flood sequence in nerve conduction.
20. The disease cystic fibrosis is associated with the loss of homeostatic control of this anion **4-D**.
21. Ingestion of excessive amounts of **8-B** can lead to hypophosphatemia by precipitation.
22. Chronic exposure to **2-A** can lead to anemia brought about by the disruption of hemoglobin synthesis.
23. Protonation of **1-I** yields the third of the recently discovered gaseous neurotransmitters. (The other two are NO and CO.)
24. This cation **3-E** is often found among the active ingredients of deodorants.

The Nine Ionic Clues	
Cations (5)	Anions (4)

