Biomolecules Present in Milk

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| **Molecule Type** | **Description** | **Physical Properties** | **Chemical Properties** |
| **Carbohydrate** | * Also known as “sugars” * Include *glucose, lactose, and galactose.* * Some people are “lactose intolerant” – they cannot digest the carbohydrate *lactose.* | * Soluble in water under most conditions. * Cannot be separated from solution by shaking or centrifugation. | * Does not react visibly with dilute acid. |
| **Protein** | * Include albumins, caseins, etc. * Present in milk to provide nutritional value to young mammals. * Has a wide range of biological functions! | * Usually denser than water * The proteins present in milk contribute to its white appearance. | * Acid can cause proteins to *denature*, or “unfold.” Denatured proteins have different physical and chemical properties than their normal form. * Can be precipitated out of solution by adding acid. |
| **Lipid** | * Hydrophobic (“water-fearing”) molecules used in a variety of contexts, including *cell membranes, hormones, etc.* | * Generally insoluble in water; suspended as dispersed colloidal particles in milk. * Conglomerates upon physical shaking. | * Does not react visibly with dilute acid. |