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.
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| **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.
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| **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.
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