The Pattern Workshops

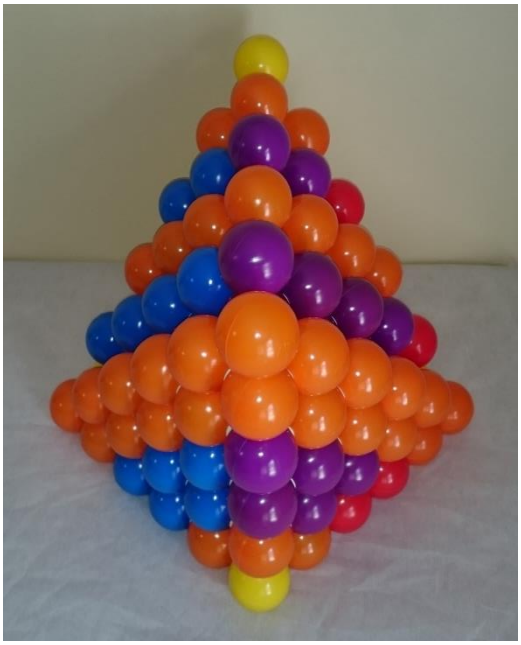
Join us Sundays 11:00 @ Karoo Café

@ corner of Lynnwood Rd and Albeth Rd, Pretoria East

Working Paper 3

The Protein Model

Amino Acid Layers



Booking essential

thepatternworkshops@gmail·com

Age: 12 years and older

What happens at the Pattern Workshop?

At this workshop you will participate in the construction of a Pattern cell protein model.

What is the Protein Model?

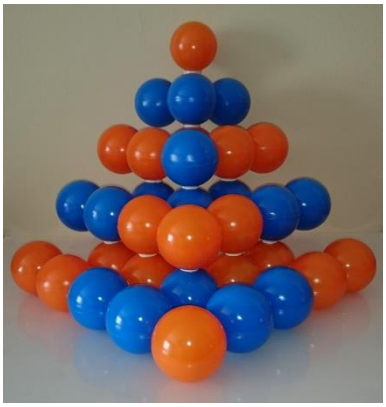
The protein model is one component of the Pattern cell that is described in the Pattern Pieces Folder 5. (See Folder 5 in thepatternbook.com.) The Pattern cell is a model of a living cell and it contains the essential component types of a living cell. The protein is one of these component types. Its origin is described in some detail on the next page.

The physical protein model is constructed from plastic balls that are glued together with Prestik®, which is a putty-like substance. The model is a triangular structure delineated by layers of red, purple and blue balls (see photos on front page). The model is composed of three identical modules of 35 balls each (see photos below).

The Red ab-module

The Purple ba-module

The Blue ab-module

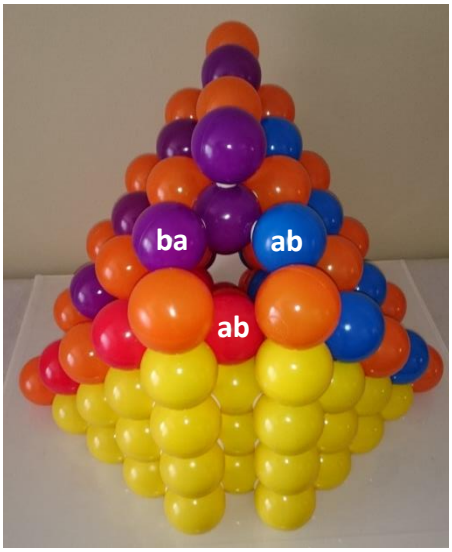


The origin of the module names (ab-module, ba-module) is described on the last page.

The coloured balls are used to identify the alternate diagonal layers of the protein model. Only six of the eight layers contain yellow backbone balls in the centre that are an integral part of every amino acid. The extra two layers are used as extensions for two of the amino acids. The number of balls in the layers of the model is 1, 4, 9, 16, 25, 36, 16, and 4.

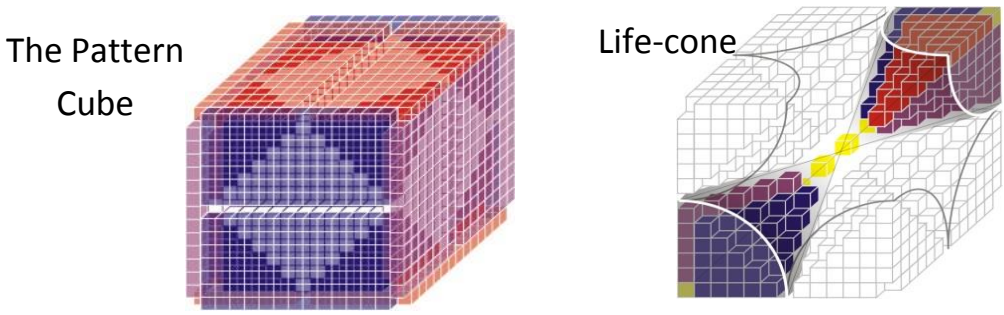
Virtual backbone chain of the Protein Model.

The backbone chain consists of six virtual links that are surrounded by the three modules. In the model the backbone links are represented by yellow balls to identify their positions in the chain. (Only the two end links are visible in the photos on the front page.)
The model on the right is minus the backbone balls. It is the view from the core of the Pattern cell. The hole through the middle represents the virtual backbone chain. (The yellow balls at the bottom are not part of the protein model. They are only there for support.)

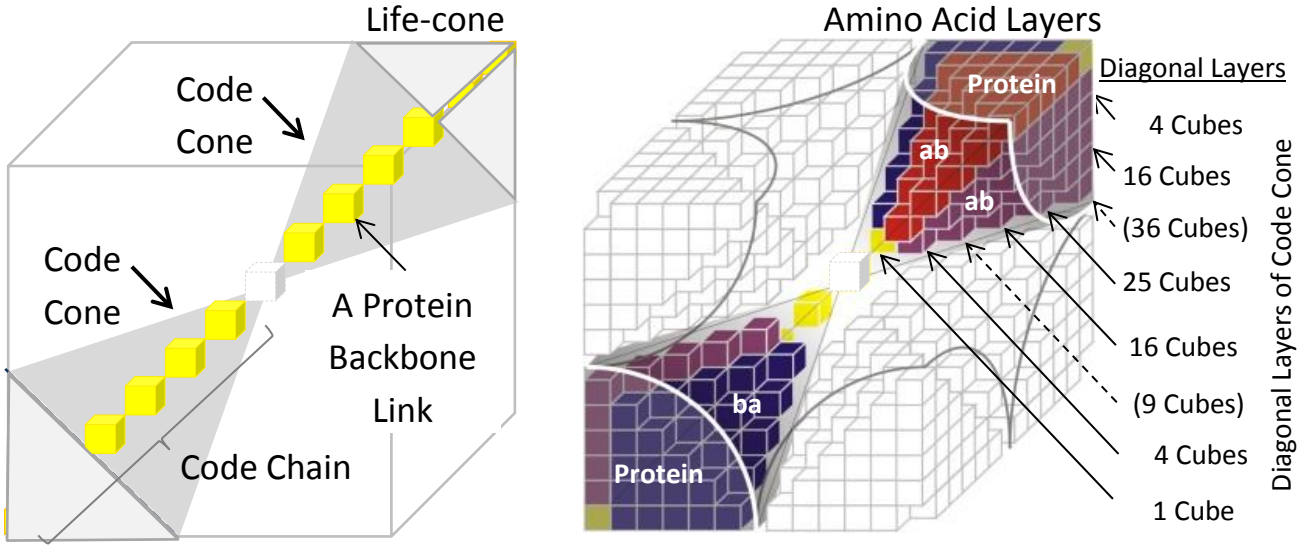


The Protein Model Explained

The Pattern cell model is based on the Pattern Cube as described in thepatternbook.com. The Pattern Cube consists of four Life-cones and three Light-cones.

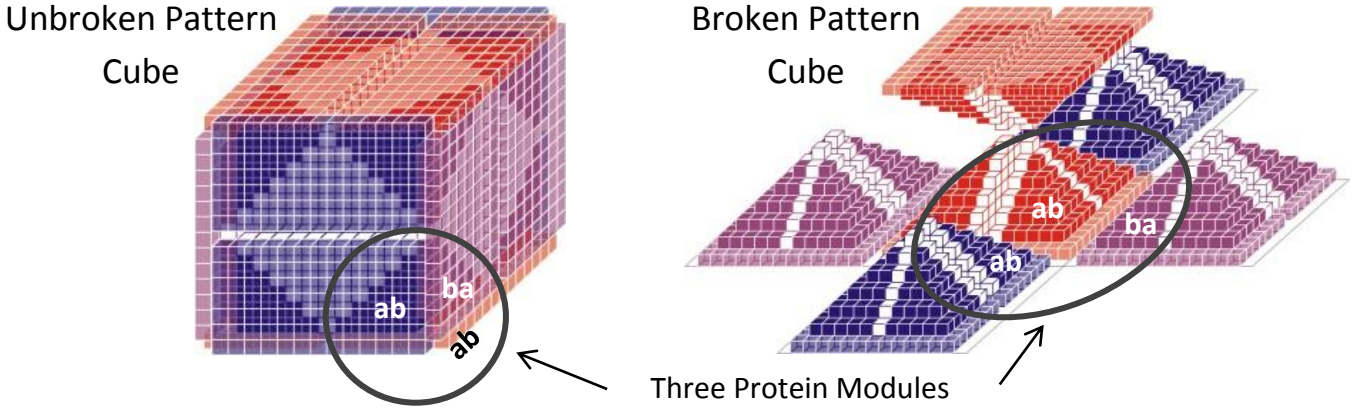


Each Life-cone consists of two code cones. Each code cone represents one protein.



A Pattern cell protein consists of six amino acids. Each amino acid has a group of molecules (side-groups) in a diagonal layer around a backbone link. A backbone is a virtual chain that stretches from the core of the Pattern Cube to a vertex of the Cube. One backbone link represents one RNA codon.

The drawings below show how the three modules of the protein model fit inside the Pattern Cube.



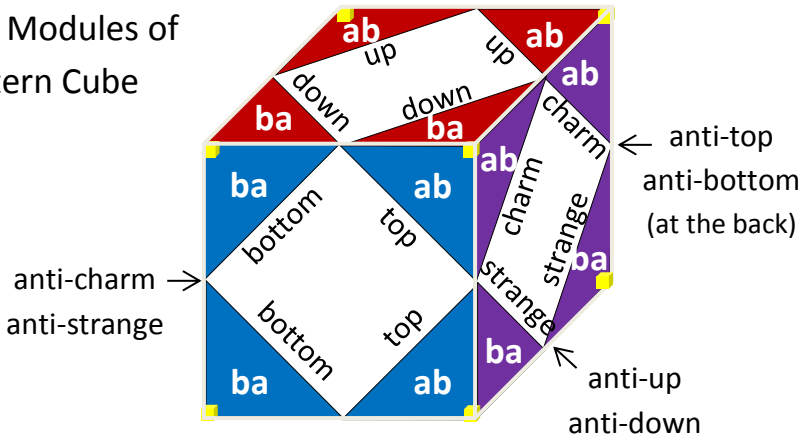
The Proton Model

The three modules of the protein model could also represent the quarks of the atom model that is described in Pattern Pieces Folder 4 *The Geometric Standard Model*.

The protein model could, therefore, also be the model of a proton or a neutron because they both consist of three quarks each.

The drawing below is from Folder 4 and it shows the different quark modules of the Pattern Cube model. The vertices of the Cube represent protons and neutrons.

The Quark Modules of the Pattern Cube



Module Naming

The naming of the individual modules, e.g. ab-module, is from the squared Pattern equation, $(a + b)^2 = aa + ab + ba + bb$. The Pattern Cube is derived from the cubed version of the basic Pattern equation, $(a + b) = c$. (See the Pattern Pieces Folder 3 for detail of the Pattern Cube.)

Gluons

The structure of protons and neutrons could be the secret to the peculiar 'rubber-band' type behaviour of gluons. Gluons keep the quark modules together and are like protein backbone chains. The tapering of the layers (1, 4, 9, 16, 25, 36, 16 and 4 balls) at both ends of the model's structure could perhaps cause gluons to keep the quarks together loosely at short distances but tightly at longer distances. (See Folder 5 for more about the gluons.)

One model for both a protein and a proton is evidence of the universality of the Pattern.

Attend a workshop and help us to make a protein model for display!

Working Paper 3 was published in thepatternbook.com on 1 June 2019.