The slope of the curve between points A and B is 0.061 at a confidence level of 0.97.

The materials in the first and second tubes were therefore inhomogeneous in that the fibril density increased steadily from top to bottom because of gravitational forces on the molecules and fibrils before gelation and the inhomogeneous density and structure leads to other non-uniform properties in the material which detract from its usefulness as a biomaterial.

For comparison, a solution of solubilized collagen such as prepared in this example shows essentially no optical density gradient when scanned immediately after being stirred and poured into a quartz tube. The sedimentation of molecules and fibrils occurs during the fibrillogenesis and before complete gelation.

EXAMPLE 2

A solution of lyophilized collagen was prepared by dissolving the collagen in a 0.15 M acetic acid solution to a concentration of 1.0% (g/ml). This solution was dialyzed at 4° C. against a buffer of NaCl and K_2PO_4 and the pH was adjusted to 7.5 with NaOH. Two 0.6×7.5 cm quartz tubes were partially filled with the solution and one tube was placed in a rack on the lab bench and left at room temperature. The second tube was placed in a centrifuge and spun at a rate which produced vectored centrifugal force equal to 3 gravities.

Significant gelation of the one gravity sample began in about 15 minutes, whereas the 3 gravity sample took about 3 hours to reach the same point of gelation.

The tubes were scanned after 15 minutes and 3 hours respectively, in the ISCO absorbance monitor to display the optical density gradient in the tubes and provide evidence of the inhomogeneity due to gravitational and centrifugal forces. The absorbance curves are given in FIGS. **2** and **3** for the **1** gravity and **3** gravity tubes, respectively. It can be clearly seen that a much larger gradient in optical density is present in the **3** gravity sample, indicating that fibril density therein is more variable from top to bottom. Quantitatively, the slope from point A to point B in FIG. **2** is 0.054 ($r=0.96$) and the slope between the same points in FIG. **3** is 0.0872 ($r=0.95$). The initial high density maximum indicated at the top of the tubes is really a meniscus effect and has been ignored in the slopes.

Extrapolating these results to less than one gravity environments, particularly zero-gravity space environment, it can be readily understood that the density gradients and therefore physical variations in structure due to collagen fibril sedimentation can be reduced if not eliminated by eliminating the forces during fibrillogenesis. In particular, the optical density of the collagen gel can be made very uniform throughout the material, such that a very pure collagen cornea or contact lens can be either cast in substantially final form or cut from large sheets of gel prepared by the inventive process. Lens blanks can be also formed individually or in sheets and can later be further shaped to the desired contour by conventional heating, chemical or pressure treatment.

We claim:

1. A method for production of a homogeneous gel matrix of unique collagen fibrils by the old method of precipitation from a solution comprising solubilized collagen molecules wherein the improvement comprises carrying out the old method under gravitational force of less than one gravity.

2. The method of claim **1**, wherein the solution additionally comprises property altering materials selected from carbohydrates and proteins.

3. The method of claim **2**, wherein the property altering material is a mucopolysaccharide.

4. The method of claim **1** or **2**, wherein the method is carried out under about zero gravity.

5. The method of claim **1**, wherein the solution is acidic and the soluble collagen molecules are fibrilized and precipitated by raising the pH above about 7 at a temperature of above about 4° C.

6. The method for production of an individual eye lens blank comprising

(a) providing a solution comprising solubilized tropocollagen molecules in an eye lens mold, and

(b) precipitating a homogeneous, self-supporting collagen gel matrix from the solution under gravitational force of less than one gravity.

7. The method for production of an eye lens prosthesis by the method of shaping a lens blank to the desired contour wherein the improvement comprises forming the lens blank by

(a) providing a thin film of a solution comprising solubilized tropocollagen molecules,

(b) precipitating a homogeneous, self-supporting gel sheet from the solution under gravitational force of less than one gravity, and

(c) cutting the eye lens blank from the gel sheet.

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