

IONIC LIQUIDS FILMS WITH MULTIPLE FUNCTIONALITIES FOR SURFACE MODIFICATION OF BIOMEDICAL - AL ALLOYS

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DESCRIÇÃO

Ionic liquid comprises either: a cation comprising substituted 1,3-dimethyl-1H-imidazol-3-ium (I) or substituted carboxymethanaminium (II), and an anion (N1) comprising optionally substituted alkyl phosphate having less than or equal to 12C, optionally substituted dialkyl phosphate having less than or equal to 12C, beta -lactam compound, amino acid having less than or equal to 18C, phosphate, sugar, ascorbic acid, boron halides (Ia), halogen or substituted ammonia (Ib); or a cation comprising substituted imidazolium (III), and anion comprising the amino acid having less than or equal to 18C, sugar or ascorbic acid.

OPORTUNIDADES DE MERCADO

The ionic liquid is useful as a lubricant on a device, where: the ionic liquid coated device is useful to promote adhesion and differentiation of bone forming cells, and to inhibit growth and adhesion of a microbe or biofilm to the device; the microbe comprises bacteria including Gram positive bacteria or Gram negative bacteria; and the device is a medical device including surgical instrument, or implantable device including a trauma, cardiovascular, orthopedic or dental implant, preferably orthopedic implant or dental implant (all claimed). No biological data given.

TECHNOLOGY FOCUS - INORGANIC CHEMISTRY - Preferred Components: The body of the device is constructed from titanium, titanium alloy (both preferred), cobalt, cobalt-chromium alloy, steel, stainless steel, polyethylene, alumina or zirconia. Preferred Method: The device is coated on one surface or all surfaces with the ionic liquid. The device is coated with a layer of the ionic liquid of 1-5000 nm, preferably 100-600 nm. The ionic liquid is deposited on at least one surface or any portion of a surface of the device.

INVENTORES

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APLICABILIDADES E DIFERENCIAIS

- The ionic liquid:
- Exhibits improved antimicrobial or host cell integrative activity compatibility and lubrication properties;
  - Is non-toxic to cells;
  - Is efficient in preventing wear and corrosion of the metal surface;
  - Provides the device with longer life span;
  - Provides faster healing.