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Macrophage-membrane coated nanowired surfaces for diagnosing and cleansing of infected blood

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Propositions

Macrophage-membrane coated nanowired surfaces for diagnosing and cleansing of infected blood

Sidi Liu

1. Nanowired structuring affect bacterial adhesion to a surface. (This thesis)
2. Bacterially-activated macrophage membrane-coatings on nanostructured surfaces exhibit broad spectrum adhesion of a wide variety of bacterial strains. (This thesis)
3. A macrophage-membrane coated nanowired surface is an ideal adsorbent surface for septic blood cleansing in an extracorporeal device. (This thesis)
4. Reducing cytokines levels in septic rat's blood can reduce mortality. (This thesis)
5. A macrophage membrane-coating on nanowired Si surfaces integrated within a microfluidic chip forms a rapid diagnosis platform for bacterial identification. (This thesis)
6. Membrane-coating sidedness is determined by the hydrophilicity and hydrophobicity of the cell membrane's outer- and inner-leaflet, respectively. (This thesis)
7. Compared with a smooth, planar surface, membrane-coatings on a nanostructured, planar surface exhibit relatively high fluidity. (This thesis)
8. A thousand miles begins with a single step.
9. Doubt is the origin of wisdom. (Rene Descartes)
10. A person who never made a mistake never tried anything new. (Albert Einstein)