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ШИРИ ТЕКСТ КУРСА СЛОБОДНО ДОСТУПАН НА САЈТУ УНИВЕРЗИТЕТСКЕ БИБЛИОТЕКЕ

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У понедељак, 26.12.2011. године, у 16 часова ће се одржати трочасовна едукација за докторанде и предаваче на Факултету за специјалну едукацију и рехабилитацију Универзитета у Београду. Тема едукације су електронски извори информација, цитатне базе, ауторска права и отворени приступ. Предавачи су Александра Поповић, Драгана Столић и Дејана Каваја Станишић. Презентација ће бити доступне на веб страници Универзитетске библиотеке.

У уторак, 27.12.2011. године, у 16 часова ће се одржати едукација студената мастер студија на Факултету за специјалну едукацију и рехабилитацију Универзитета у Београду. Тема едукације су електронски каталози, електронски извори информација и КоБСОН. Предавачи су Драгана Столић и Дејана Каваја Станишић.

У среду, 28.12.2011. године, у 10 часова ће се одржати трочасовна едукација за докторанде и наставно особље на Факултету за физичку хемију Универзитета у Београду. Тема едукације су електронски извори информација, цитатне базе, ауторска права и отворени приступ. Предавачи су Александра Поповић и Сања Антонић. Презентације ће бити доступне на веб страници Универзитетске библиотеке.

ОБУКА КОРИСНИКА СРЕДОМ ОД 12 ДО 13 ЧАСОВА

Библиотека сваке среде, на спрату у главном холу, организује обуку корисника. Заинтересовани могу да се пријаве Одељењу за научне информације и едукацију путем електронске поште edukacija@unilib.bg.ac.rs. Обуку могу да прате и корисници који нису пријављени. Циљ обуке је упознавање са услугама Библиотеке и са могућностима претраживања доступних извора информација (садржај обуке). Добродошле су све сугестије корисника!



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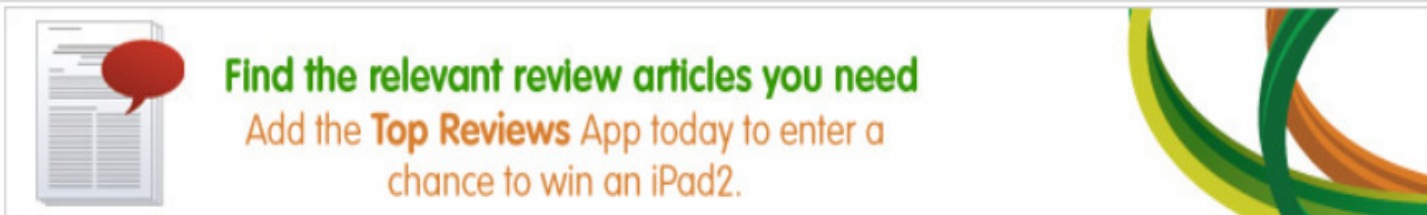
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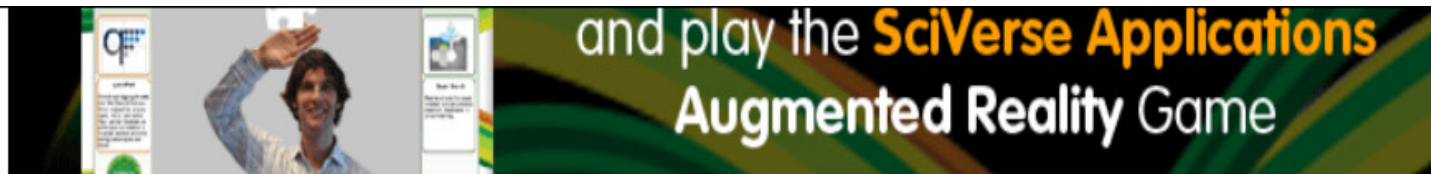
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Technical, bioinformatical and statistical aspects of liquid chromatography–mass spectrometry (LC–MS) and capillary electrophoresis-mass spectrometry (CE-MS) based clinical proteomics: A critical assessment

Mohammed Dakna^a, Zengyou He^b, Wei Chuan Yu^b, Harald Mischak^a, Walter Kolch^c

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^b Department of Electronic and Computer Engineering, The Hong Kong University of Science and Technology, Clear Water Bay, Kowloon, Hong Kong, China

^c The Beatson Institute for Cancer Research & Sir Henry Wellcome Functional Genomics Facility, University of Glasgow, Glasgow, UK

Received 9 July 2008; Accepted 28 October 2008. Available online 6 November 2008.

Abstract

The search for **biomarkers** in biological fluids that can be used for disease diagnosis and prognosis using mass spectrometry has emerged to become a state-of-the-art methodology for clinical proteomics. Poor cross platform comparison of the findings, however, makes the need for comparison studies probably as urgent as the need for new ones. It is now increasingly recognized that standardized statistical and bioinformatics approaches during data processing are of utmost importance for such comparisons. This paper reviews two of the currently most promising methods, namely LC–MS and CE-MS techniques, and software tools used to analyze the huge amount of data they generate. We further review the statistical issues of feature selection and sample classification.

Keywords: LC–MS; CE-MS; **Biomarkers**; Clinical proteomics; Statistical data analysis

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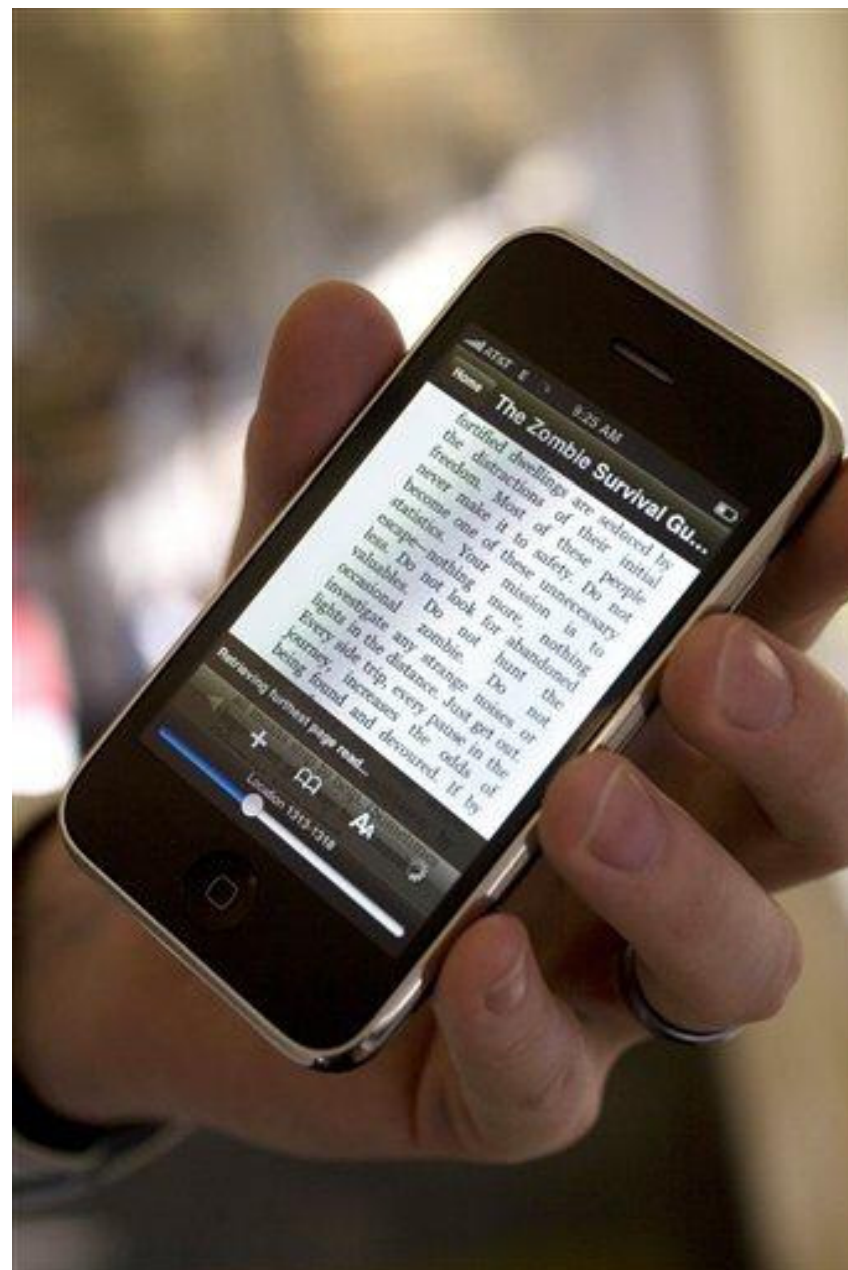
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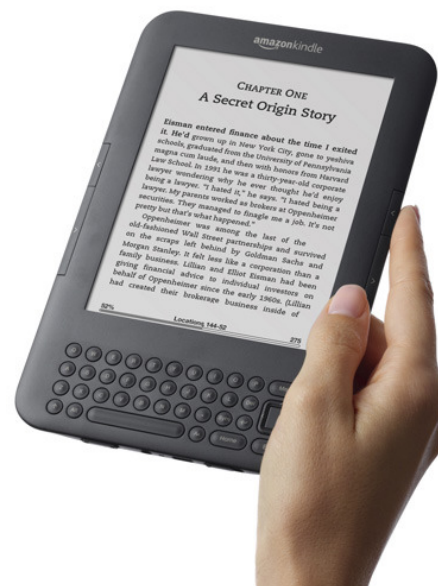
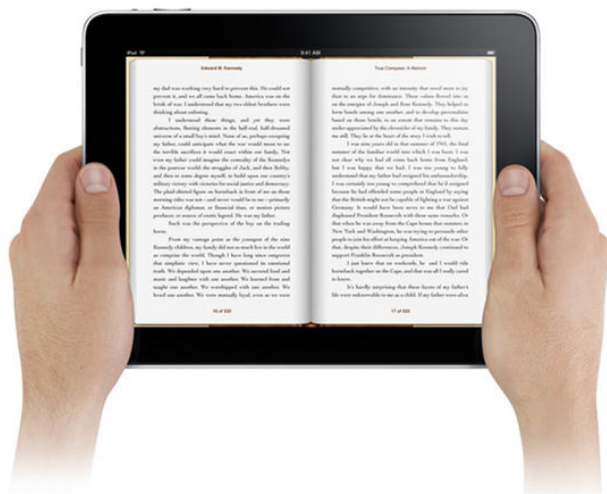
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PHARMACEUTICAL ASPECTS OF GENE THERAPY

Philip R. Dash and Leonard W. Seymour
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1. INTRODUCTION

The concept of gene therapy as a treatment for human disease is almost as old as molecular biology itself. One of the first proposals for the use of genes in the treatment of human diseases was made by Tatum in his 1958 Nobel Prize acceptance speech, while the term gene therapy was coined by Szybalski in the early 1960s¹. However, it wasn't until the early 1990s that the science of gene therapy had progressed enough to enter clinical trials².

The idea underlying gene therapy is that human disease might be treated by the transfer of genetic material into specific cells of a patient in order either to replace a defective gene or to introduce a new function to the cell^{3,4}. The potential of gene therapy to treat a wide range of diseases has led to very rapid advances in the science of gene transfer and in understanding the molecular basis of many diseases. Despite this, and a

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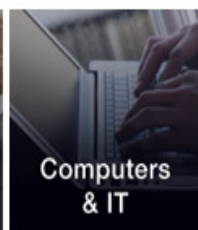
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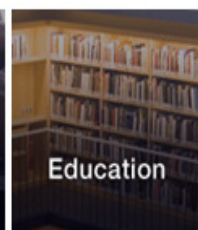
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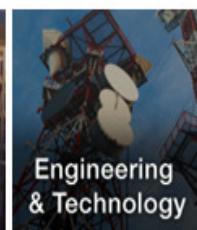
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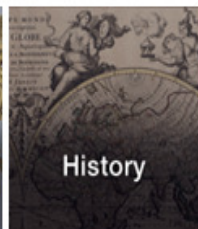
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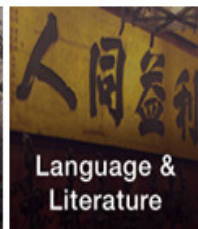
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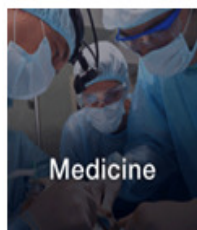
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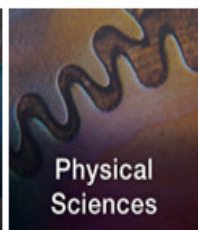
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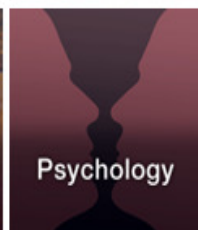
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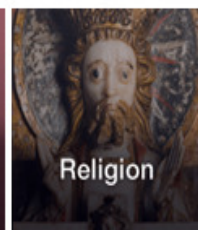
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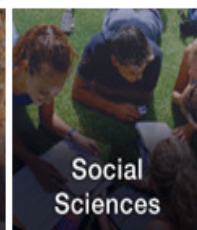
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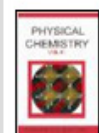
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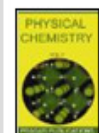
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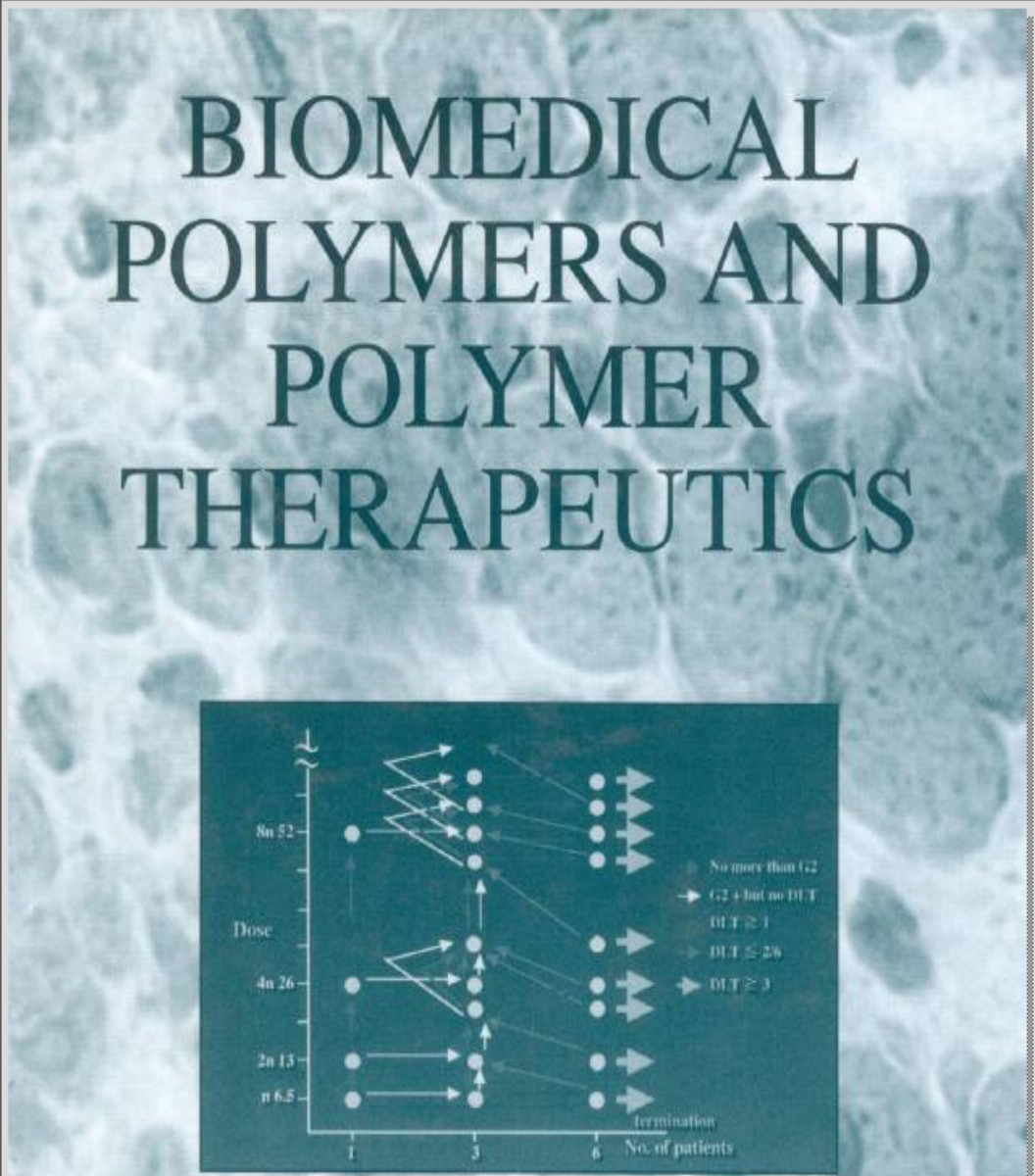
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TOC NOTES(0)

Highlight Search Terms

Contents

Contents

PART 1. BIOMEDICAL POLYMERS AND POLYMER THERAPEUTICS

Chapter 1

MOLECULAR DESIGN OF BIODEGRADABLE DEXTRAN HYDROGELS FOR THE CONTROLLED RELEASE OF PROTEINS

W.E. Hennink, J.A. Cadée, S.J. de Jong, O. Franssen, R.J.H. Stenekes, H. Talsma, and W.N.E. van Kijk-Wolthuis

- | | |
|---|----|
| 1. Introduction | 3 |
| 2. Protein Release From Non-Degrading Dextran Hydrogels | 4 |
| 3. Protein Release From Enzymatically Degrading Dextran Hydrogels | 7 |
| 4. Protein Release From Chemically Degrading Dextran Hydrogels | 8 |
| 5. Protein Release From Degrading Dextran Microspheres | 13 |
| 6. In Vivo Biocompatibility of Dextran Based Hydrogels | 15 |
| 7. Conclusion | 16 |

Chapter 2

BIODEGRADABLE NANOSPHERES: THERAPEUTIC APPLICATIONS

Jasmine Davda, Sinjan De, Wenzhong Zhou, and Vinod Labhasetwar

- | | |
|-----------------|----|
| 1. Introduction | 19 |
|-----------------|----|

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Contents
Notes
Highlights

Contents

PART I. BIOMEDICAL POLYMERS AND POLYMER THERAPEUTICS

Chapter 1

MOLECULAR DESIGN OF BIODEGRADABLE DEXTRAN HYDROGELS FOR THE CONTROLLED RELEASE OF PROTEINS

W.E. Hennink, J.A. Cadée, S.J. de Jong, O. Franssen, R.J.H. Stenekes, H.

Contents xvii

Philip R. Dash and Leonard W. Seymour

- | | |
|--|-----|
| 1. Introduction | 341 |
| 2. Potential Disease Targets for Gene Therapy | 343 |
| 3. Clinical Trials of Gene Therapy | 346 |
| 4. Viral Gene Delivery Systems | 348 |
| 5. Non-Viral Gene Delivery Systems | 351 |
| 6. Polymer-Based Non-Viral Gene Delivery Systems | 355 |

Chapter 27

**HIGH-MOLECULAR WEIGHT POLYETHYLENE GLYCOLS
CONJUGATED TO ANTISENSE OLIGONUCLEOTIDES**

Gian Maria Bonora

- | | |
|--|-----|
| 1. Introduction | 371 |
| 2. Polymer-Conjugated Oligonucleotides | 373 |

Define

Explain

Locate

Translate

Who

Search Document...

Search All Documents...

Search Web

Highlight

Add To Bookshelf

Copy Text...

Copy Bookmark

Print...

Print Again

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Philip R. Dash and Leonard W. Seymour

343

POTENTIAL DISEASE TARGETS FOR GENE THERAPY

1.1 Gene therapy of inherited genetic diseases

The replacement of inherited defective genes is, perhaps, the most obvious use of gene therapy. The aim of replacement gene therapy is to replace a missing or defective gene that is responsible for the disease in order to restore normal function. The ultimate aim is the permanent correction of the disorder, possibly by integration of the gene into stem cells. A major limitation to this type of treatment is the problem of gaining access to the relevant tissues. For this reason, the early gene replacement strategies have focused on readily accessible tissue such as muscle, lung, blood and bone marrow³.

Blood cells and bone marrow are associated with a number of relatively

- Define
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343

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Notes	Page
ciljne bolesti	362

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Blood cells and bone marrow are associated with a number of relatively common genetic diseases and as such are a major target for gene therapy. Gene transfer into lymphocytes or haemopoietic stem cells potentially allows the treatment of a variety of diseases including immune deficiency disorders such as adenosine deaminase deficiency (ADA-SCID); storage disorders such as Gaucher's disease and haemoglobinopathies such as sickle cell anaemia and the thalassaemias. The only clinical trials involving gene transfer into lymphocytes have been concerned with the correction of ADA-SCID, a very rare immune deficiency syndrome, and most work has concentrated on transfer of genes into stem cells¹.

Cystic fibrosis is the most common inherited genetic disease in Europe and the United States. A mutation in the cystic fibrosis transmembrane conductance regulator (CFTR) gene results in the production of an abnormal protein that does not properly control the flow of chloride ions across membranes. The major clinical manifestation of this disease is in the airway epithelia, resulting in chronic inflammation with subsequent damage to the lung tissue. The average life expectancy of patients with CF is around 30

Notes	Page
ciljne bolesti	362
ostala oboljenja	364

Gene therapy has the potential to be used in the treatment of almost any disease with a genetic component. There are a number of cardiovascular diseases that are under investigation for possible treatment with gene therapy. For example, familial hypercholesterolaemia might be treated by transferring the gene encoding for the low density lipoprotein receptor into hepatocytes in order to reduce the level of serum cholesterol¹⁰⁻¹². Other strategies for the gene therapy of cardiovascular disease include inhibiting smooth muscle cell proliferation, that might lead to stenosis, following balloon angioplasty^{13,14} and stimulation of vascular growth to overcome ischaemia¹⁰.

Other diseases that have been investigated for possible treatment with gene therapy include AIDS^{1,15}, neurodegenerative diseases such as Alzheimer's and Parkinson's¹⁶, traumatic nerve injury¹⁷ and autoimmune diseases^{1,18}.

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Delete Revert

User: antonic

Notes	Page
ciljne bolesti	362
ostala oboljenja	364

Notes

Highlights

▼

Define

Explain

Locate

Translate

Who

Search Document...

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Notes	Page
ciljne bolesti	362
ostala oboljenja	364

Notes
Highlights

Gene therapy has the potential to be used in the treatment of almost any disease with a genetic component. There are a number of cardiovascular diseases that are under investigation for possible treatment with gene therapy. For example, familial hypercholesterolaemia might be treated by transferring the gene encoding for the low density lipoprotein receptor into hepatocytes of serum cholesterol¹⁰⁻¹². Other strategies for regenerative diseases such as Alzheimer's disease^{1,18} might lead to stenosis, following balloon angioplasty and subsequent neovascular growth to overcome ischaemia¹⁰.

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Highlights	Page
Blood cells and ...	362
For this reason, ...	362
Gene Directed E...	363
Other diseases t...	364

Notes

Highlights

InfoTools

Define
Explain
Locate
Translate
Who

Search Document...
Search All Documents...
Search Web

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of the gene therapy clinical trials .

There are numerous approaches to using gene therapy to treat cancer, and some of these are outlined below.

Immunotherapy. The immunotherapy approach to cancer gene therapy is one in which the immunogenicity of tumours is increased by causing the local production of immunomodulatory agents such as cytokines (interleukin-2 or granulocyte macrophage colony stimulating factor for example) or by increasing the level of MHC antigen expression⁷. Increasing the immunogenicity of tumours may then lead to an antitumour response. Because immunity is a systemic reaction, this immune reaction could potentially eliminate all the tumour cells in the body, including sites of metastatic deposit.

Gene Directed Enzyme Pro-drug Therapy (GDEPT). The introduction of genes that encode enzymes capable of converting pro-drugs to cytotoxic drugs is the basis of the GDEPT approach to cancer gene therapy. A relatively harmless pro-drug can be administered to a patient following the transfection of some tumour cells with genes encoding enzymes that will activate the pro-drug *in situ* to form a cytotoxic drug that will kill the tumour cell. This approach may be considered as using gene therapy to improve upon conventional chemotherapy. The local expression of an activating enzyme ensures that the peripheral toxicity often associated with chemotherapy is reduced. The use of a relatively harmless pro-drug ensures that high doses can be administered to the patient, resulting in high

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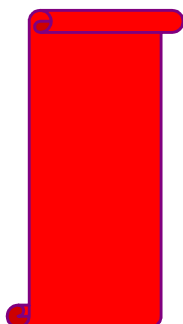
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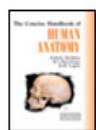
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Notes	Page
ciljne bolesti	362
ostala oboljenja	364

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