Pharmaceutical Applications of Biotechnology

Cancer Therapeutics

1.

Immunotherapies (CAR-T Cell Therapy)

Modifies patient s T-cells to attack cancer cells, leading to personalized and highly effective cancer treatment.
3.

Targeted Chemotherapy Nanoparticles

Delivers chemotherapy drugs directly to cancer cells, reducing damage to healthy tissues.

Neurological Therapeutics

5.

Neurostimulation Devices

Utilizes implanted devices to modulate neural activity, offering relief for conditions like epilepsy and chronic pain.
7.

3.

Biological Heart Valves

Develops heart valves from biological materials, improving durability and compatibility in heart valve replacements.

9.

4.

Insulin Analogues

- Creates modified insulin molecules for more precise blood sugar control in diabetes management.
11.

5.

Interferons and Interleukins

- Utilizes these proteins to modulate the immune response, treating diseases like multiple sclerosis and certain cancers.
13.

6.

Antiviral Monoclonal Antibodies

- Develops antibodies targeting viral proteins, aiding in the treatment of infections like HIV and COVID-19.
15.

7.

Biologic Therapies for Asthma

- Targets specific inflammatory pathways, offering more effective and targeted treatment for asthma.
17.

8.

Probiotics and Prebiotics

- Administers beneficial bacteria and dietary fibers, supporting gut health and aiding in digestive disorders.
19.

9.

TNF-alpha Inhibitors

- Blocks TNF-alpha, reducing inflammation and joint damage in conditions like rheumatoid arthritis.

21.

10.

Clotting Factor Therapies

- Provides clotting factors for hemophilia patients, preventing bleeding episodes and joint damage.

23.

11.

Erythropoiesis-Stimulating Agents (ESAs)

- Stimulates red blood cell production, alleviating anemia caused by cancer

treatments.

25.

12.

Neuropathic Pain Therapies

- Targets

specific pain pathways, offering relief for chronic neuropathic pain conditions.

27.

13.

Antipsychotic Biologics

- Targets specific

neurotransmitter pathways, addressing conditions like schizophrenia and bipolar disorder.

29.

14.

Biologic Therapies

for Psoriasis

- Targets immune pathways

involved in psoriasis, reducing skin inflammation and symptoms.

31.

15.

Anti-VEGF Therapies

- Inhibits vascular endothelial growth factor

(VEGF), treating conditions like age-related

macular degeneration.

33.

16.

Enzyme

Replacement

Therapies

(ERT)

-

Provides

functional enzymes for genetic disorders

like Gaucher s disease, improvin g patient

quality of life.

35.

17.

Orpha n Drug

Therapies

-

Develops drugs for rare

diseases, often providing

significa nt therape utic

advance ments for patients

with limited treatment

options.

37.

18.

In

Vitro

Fertili

zation

(IVF)

Suppo

rt

Provides hormo

nal therapies and

growth factors to

enhanc e IVF success

rates, aiding in

fertilit

y

treatm

ents.

39.

19.

Senol

ytic

Ther

apies

-

Targets and

removes senesc

ent cells, potent

ially

exten

ding

healthy lifesp

an

and

delayi

ng age-related

d

d diseas

es.