3. Poly(lactide-co-glycolide) (PLGA) copolymers
2. N-(2-hydroxypropyl)methacrylamide (HPMA)
1. Poly(ethylene glycol) (PEG)

Research:
Several polymers have been successfully utilized in clinical targeting moieties, and imaging agents. Polymers are used as carriers for the delivery of drugs, proteins, respectively, are sugars, amino acids, and nucleotides. Examples of bioopolymers, in which the monomeric units, cellulose, starch, chitin, proteins, peptides, DNA and RNA are all called monomers. Bioopolymers, including bioopolymers, are made of repetitive units.
Enhancement of drug bioavailability.

1. Increase in water solubility of low solubility or insoluble drugs, and therefore, soluble or insoluble drugs, and therefore,

The main advantages include:

- Polymeric produgs have several advantages.
- Degradable or non-degradable bonds.
- Polymer conjugates possess either "tuned" based on the site and the mode of action.
- So-called polymereic produrg.
- A conjugation of a drug with a polymer forms polymeric produrg.
that enhance the specific activity of the main drug.

carrier, may include several other active components
delivery system, which, in addition to drug and polymer
g. The possibility to form an advanced complex drug
the drug specifically to the site of its action.
actively targeting or passive targeting of
5. The ability to provide passive or active targeting or a less pronounced immunological body response.
4. A reduction in antigenic activity of the drug leading

3. An improvement in pharmacokinetics.
to targeted organ or tissue and intracellular trafficking.
2. Protection of drug from deactivation and preservation of its activity during circulation, transport
Conjugated are equally important properties of the drug or biomolecule to be along with the polymer, the physico-chemical.

Along with the polymer, the physico-chemical properties of the biocojugated moiety.

Due to their higher molecular weight, polymers are known to dominate the physical properties of biocojugates.

Biocojugates are being extensively used in drug, either homopolymer, or graft or block.

Depending on the nature and site of action of a
4. Reduced cellular entry
3. Higher systemic toxicity, and
2. Instability at varied physiological pHs.
1. Lower aqueous solubility.

The following properties of the drug candidate to form the polymeric conjugate: molecules make it suitable as an ideal
1. Increase their plasma stability.
2. Reduces protein immunogenicity and
3. Can increase therapeutic index.

- Does:
  - Synthetic polymers, particularly poly (ethylene glycol) (PEG)
  - Covalent conjugation of biomolecules, e.g., protein drugs to
  - PEG-Adenosine deaminase.

Numerous polymeric products are in clinical phases and several others have been approved e.g., Liposomals- Amphotericin B &
The reactivity of the biomolecule as well as the polymer.

Steric hindrance and molecular weight.

The chemical structure.

Successful bioconjugation depends upon:

NH₂

Functional groups such as -COOH, -OH, -SH or -

Groups

Involves either protection or deprotection of the synthetic methodology to form a conjugate. Therefore, the presence of multiple reactive groups makes the task a bit complex.

However, the presence of multiple reactive groups...
Polymer-drug conjugates can therefore be tailored for activation in situ, or intracellular enzymes releasing the parent drug by extracellular enzymes releasing the parent drug in extracellular or intracellular enzymes. Administration of the drugs to the cancerous tissues to decrease peripheral side effects and to obtain a more specific product. Containing cytotoxic components. High molecular weight for the delivery of anticancer agents. In the past, most of the polymeric products have been developed and developed acceptable environmental changes. Covalent bonds (e.g., ester or amide) are stable and could deliver release-targeting agents and peptides under the influence of the drug at the targeted site, but such bonds may not easily hydrolyzing in the body. Chemical conjugation of drugs to other biomolecules to polymers and its modifications can form stable bonds such as ester, amide, and disulfide. Many of the most commonly used strategies involve use of N-hydroxysuccinimide esters or use of carbodiimide (EDC) or use of DCC.
at specific times, also to release a specified amount of the drug inside specific organelles inside certain cells or target a desired organ as a whole, its cells or system can be constructed not only to advanced type of prodrg—drug delivery approach is possible by the use of an realization of the prodrg:

Design and synthesis of polymeric prodrgs:
Three major types of polymeric prodruugs are

1. Prodrugs that are broken down inside cells currently being used.

2. Prodrugs that are usually the combination to form active substance or substances.

3. Prodrugs that are include three react forming an active drug.

Components: a targeting moiety, a carrier, and one or more active component(s).
(e) Targeting moiety (Fig. 1a and b).

(d) An imaging agent and versatility for conjugation.

(c) Spacer for hydrolysis of the biologicactive components.

(b) One or more drugs of the biologic active.

(a) A polymeric backbone as a vehicle.

In general, an ideal polymeric prodrug model consists mainly of a combination of one or more components:
Targeting and Imaging agent. (a) Hyperbranched polymer conjugate with targeting moiety for polymer drug delivery. (b) Hyperbranched polymer conjugate with imaging agent and targeting moiety.
enhancer.

cellular uptake by cell-specific or non-specific uptake

possibility of altering the body distribution and the

The most challenging aspect of this protocol is the

release of the active drug from the conjugates either

possibility of controlling the site and the rate of

Selection of the spacer arm is critical as it opens the

the polymer backbone.

The drug is coupled directly or via a spacer arm onto

biocompatible or an inert biodegradable polymer.

The drug delivery carrier can be either
The polymers selected for preparing macromolecular produgs can be categorized according to:

1. Chemical nature (vinyllic or acrylic)
2. Biodegradability
3. Origin (either natural polymers or synthetic oligomers, macromers, polymers)
4. Molecular weight (oligomers, macromers and polymers)
Crucial for successful chemical conjugation.

Selection of a suitable method, process, and reagents are

combinations of these functional groups. Selection

polymers, nucleic acids, and oligonucleotides possess

ligands, peptides, proteins, carbohydrates, lipids,

In general, most of the biomolecules such as

- component
  - (1) Reactive functional groups present in the biologic
  - (2) Functional groups present on the polymer and

Modification of a polymer to form a conjugate with a

Polymeric drug delivery system (PDDS)
The incorporation of a spacer arm can enhance the crowding effect and steric hindrance. Various spacers have been incorporated along with the polymers and copolymers to decrease the crowding effects. The incorporation of a spacer arm in drug conjugation is beneficial.

1. N-Hydroxysuccinimide (NHS) ester and coupling biological active prodruing conjugates: Obtain a polymeric drug delivery system as the following are common strategies adapted to...
called zero length cross-linkers.

possible reagents for biocatalyst syntheses are
biocomponents with polymers. The smallest
obtain chemically conjugates involving drugs or other
and condensation reactions are unique to
cross-linkers:

3. Carbodiimide coupling reactions or zero lengths
and biodegradability.

their chemical versatility for covalent conjugation
alanine, and small peptides are preferred due to
For example, amino acid spacers such as glycine,