Dexamethasone

**CAS Number**: 50-02-2

**Molecular Weight**: 392.4611 g/mol

**Molecular Formula**: C_{22}H_{29}FO_{5}

**Systematic (IUPAC)**:

(1R,2S,10S,11S,13R,14R,15S,17S)-1-fluoro-14,17-
dihydroxy-14-(2-hydroxyacetyl)-2,13,15-
trimethyltetracyclo[8.7.0.0^{2,7}.0^{11,15}]heptadeca-3,6-dien-5-one
**Type**: small molecule

**Description**: An anti-inflammatory 9-fluoro-glucocorticoid.

**Categories**
- Anti-inflammatory Agents
- Adrenergic Agents
- Antiemetics
- Antineoplastic Agents, Hormonal
- Glucocorticoids

**Taxonomy**

**Kingdom**: Organic

**Classes**: Steroids and Steroid Derivatives

**Substructures**
- Steroids and Steroid Derivatives
- Hydroxy Compounds
- Alkanes and Alkenes
- Alkyl Halides
- Alcohols and Polyols
- Ketones

**Pharmacology**

**Indication**: Injection: for the treatment of endocrine disorders, rheumatic disorders, collagen diseases, dermatologic diseases, allergic states, ophthalmic
diseases, gastrointestinal diseases, respiratory diseases, hematologic disorders, neoplastic diseases, edematous states, cerebral edema.
Ophthalmic ointment and solution: for the treatment of steroid responsive inflammatory conditions of the palpebral and bulbar conjunctiva, cornea, and anterior segment of the globe.
Ophthalmic solution only: for the treatment of steroid responsive inflammatory conditions of the external auditory meatus
Topic cream: for relief of the inflammatory and pruritic manifestations of corticosteroid-responsive dermatoses
Oral aerosol: for the treatment of bronchial asthma and related corticosteroid responsive bronchospastic states intractable to adequate trial of conventional therapy
Intranasal aerosol: for the treatment of allergic ot inflammatory nasal conditions, and nasal polyps

Pharmacodynamics: Dexamethasone and its derivatives, dexamethasone sodium phosphate and dexamethasone acetate, are synthetic glucocorticoids. Used for its antiinflammatory or immunosuppressive properties and ability to penetrate the CNS, dexamethasone is used alone to manage cerebral edema and with tobramycin to treat corticosteroid-responsive inflammatory ocular conditions.

Mechanism of action: Dexamethasone is a glucocorticoid agonist. Unbound dexamethasone crosses cell membranes and binds with high affinity to specific cytoplasmic glucocorticoid receptors. This complex binds to DNA elements (glucocorticoid response elements) which results in a modification of
transcription and, hence, protein synthesis in order to achieve inhibition of leukocyte infiltration at the site of inflammation, interference in the function of mediators of inflammatory response, suppression of humoral immune responses, and reduction in edema or scar tissue. The antiinflammatory actions of dexamethasone are thought to involve phospholipase A2 inhibitory proteins, lipocortins, which control the biosynthesis of potent mediators of inflammation such as prostaglandins and leukotrienes.

**Absorption**: 80-90%

**Protein binding**: 70%

**Metabolism**: Hepatic.

**Half life**: 36-54 hours

**Toxicity**: Oral, rat LD50: >3 gm/kg. Signs of overdose include retinal toxicity, glaucoma, subcapsular cataract, gastrointestinal bleeding, pancreatitis, aseptic bone necrosis, osteoporosis, myopathies, obesity, edemas, hypertension, proteinuria, diabetes, sleep disturbances, psychiatric syndromes, delayed wound healing, atrophy and fragility of the skin, ecchymosis, and pseudotumor cerebri.

**Affected organisms**: Humans and other mammals

---

**What is Decadron (dexamethasone)?**
Dexamethasone is in a class of drugs called steroids. Dexamethasone reduces swelling and decreases the body's immune response.

Dexamethasone is used to treat many different conditions. It is used to treat endocrine (hormonal) disorders when the body does not produce enough of its own steroids. It is also used to treat many immune and allergic disorders, such as arthritis, lupus, severe psoriasis, severe asthma, ulcerative colitis, and Crohn's disease.

**How does it work?**

Dexamethasone is a type of medicine known as a corticosteroid. Corticosteroid medicines are derivatives of the corticosteroid hormones cortisol and aldosterone that are produced naturally by the adrenal glands. They are often simply called steroids, but it should be noted that they are very different from another group of steroids, called anabolic steroids, which have gained notoriety because of their abuse by some athletes and body builders.

Corticosteroids have many important functions on every organ system. If the body's natural level of steroid hormones is too low because the adrenal glands are not producing enough hormones, this must be treated with replacement therapy to allow the body to function normally. Dexamethasone is used specifically to treat a disorder of the adrenal glands called congenital adrenal hyperplasia. People with this condition lack an enzyme needed by the adrenal glands to produce cortisol and aldosterone, and without these hormones the adrenal glands produce too much of the male sex hormones (androgens). This causes early (or inappropriate)
appearance of male characteristics. Taking
dexamethasone daily helps return the hormone levels to
normal.
Corticosteroid hormones are also involved in controlling
inflammatory responses in the body. Dexamethasone
has an anti-inflammatory effect and is used to decrease
inflammation in various different diseases and
conditions.
Dexamethasone decreases inflammation by acting
within cells to prevent the release of certain chemicals
that are important in the immune system. These
chemicals are normally involved in producing immune
and allergic responses. By decreasing the release of these
chemicals in a particular area, inflammation is reduced.
This can help control a wide number of disease states
characterised by excessive inflammation. These include
severe allergic reactions, inflammation of the lungs in
asthma and inflammation of the joints in arthritis.
Dexamethasone also decreases the numbers of white
blood cells circulating in the blood. This, along with the
decrease in inflammatory chemicals, can prevent the
rejection of organ transplants, as it prevents the body
from attacking foreign tissue. It is useful for the
treatment of certain types of leukaemia, where there is
an abnormally large production of certain white blood
cells, and for treating certain diseases that are caused by
the immune system attacking tissues in the body
(autoimmune diseases).

**Drug Class And Mechanism**
Dexamethasone is a synthetic (man-made)
corticosteroid. Corticosteroids are naturally-occurring
chemicals produced by the adrenal glands located above
the kidneys. Corticosteroids affect the function of many cells within the body and suppress the immune system. Corticosteroids also block inflammation and are used in a wide variety of inflammatory diseases affecting many organs.

**Dosing**
Dosage requirements of corticosteroids vary greatly among individuals and the diseases being treated. In general, the lowest possible effective dose is used. The initial oral dose is 0.75 to 9 mg daily depending on the disease. The initial dose should be adjusted based on response. Corticosteroids given in multiple doses throughout the day are more effective but also are more toxic as compared with the same total daily dose given once daily, or every other day.

**Why is this medication prescribed?**
Dexamethasone, a corticosteroid, is similar to a natural hormone produced by your adrenal glands. It often is used to replace this chemical when your body does not make enough of it. It relieves inflammation (swelling, heat, redness, and pain) and is used to treat certain forms of arthritis; skin, blood, kidney, eye, thyroid, and intestinal disorders (e.g., colitis); severe allergies; and asthma. Dexamethasone is also used to treat certain types of cancer.

This medication is sometimes prescribed for other uses; ask your doctor or pharmacist for more information.

**How should this medicine be used?**
Dexamethasone comes as a tablet and a solution to take by mouth. Your doctor will prescribe a dosing schedule
that is best for you. Follow the directions on your prescription label carefully, and ask your doctor or pharmacist to explain any part you do not understand. Take dexamethasone exactly as directed. Do not take more or less of it or take it more often than prescribed by your doctor.

Do not stop taking dexamethasone without talking to your doctor. Stopping the drug abruptly can cause loss of appetite, upset stomach, vomiting, drowsiness, confusion, headache, fever, joint and muscle pain, peeling skin, and weight loss. If you take large doses for a long time, your doctor probably will decrease your dose gradually to allow your body to adjust before stopping the drug completely. Watch for these side effects if you are gradually decreasing your dose and after you stop taking the tablets or oral liquid, even if you switch to an inhalation corticosteroid medication. If these problems occur, call your doctor immediately. You may need to increase your dose of tablets or liquid temporarily or start taking them again.

**What special precautions should I follow?**

Before taking dexamethasone, tell your doctor and pharmacist if you are allergic to dexamethasone, aspirin, tartrazine (a yellow dye in some processed foods and drugs), or any other drugs. tell your doctor and pharmacist what prescription and nonprescription medications you are taking especially anticoagulants ('blood thinners') such as warfarin (Coumadin), arthritis medications, aspirin, cyclosporine (Neoral, Sandimmune), digoxin (Lanoxin), diuretics ('water pills'), ephedrine, estrogen (Premarin), ketoconazole (Nizoral), oral contraceptives,
phenobarbital, phenytoin (Dilantin), rifampin (Rifadin), theophylline (Theo-Dur), and vitamins.

if you have a fungal infection (other than on your skin), do not take dexamethasone without talking to your doctor.

tell your doctor if you have or have ever had liver, kidney, intestinal, or heart disease; diabetes; an underactive thyroid gland; high blood pressure; mental illness; myasthenia gravis; osteoporosis; herpes eye infection; seizures; tuberculosis (TB); or ulcers.

tell your doctor if you are pregnant, plan to become pregnant, or are breast-feeding. If you become pregnant while taking dexamethasone, call your doctor.

if you are having surgery, including dental surgery, tell the doctor or dentist that you are taking dexamethasone.

if you have a history of ulcers or take large doses of aspirin or other arthritis medication, limit your consumption of alcoholic beverages while taking this drug. Dexamethasone makes your stomach and intestines more susceptible to the irritating effects of alcohol, aspirin, and certain arthritis medications: this effect increases your risk of ulcers.

What special dietary instructions should I follow?

Your doctor may instruct you to follow a low-sodium, low-salt, potassium-rich, or high-protein diet. Follow these directions.

Dexamethasone may cause an upset stomach. Take dexamethasone with food or milk.

What should I do if I forget a dose?
When you start to take dexamethasone, ask your doctor what to do if you forget a dose. Write down these instructions so that you can refer to them later.
If you take dexamethasone once a day, take the missed dose as soon as you remember it. However, if it is almost time for the next dose, skip the missed dose and continue your regular dosing schedule. Do not take a double dose to make up for a missed one.

What side effects can this medication cause?
Dexamethasone may cause side effects. Tell your doctor if any of these symptoms are severe or do not go away:
- upset stomach
- stomach irritation
- vomiting
- headache
- dizziness
- insomnia
- restlessness
- depression
- anxiety
- acne
- increased hair growth
- easy bruising
- irregular or absent menstrual periods

If you experience any of the following symptoms, call your doctor immediately:
- skin rash
- swollen face, lower legs, or ankles
- vision problems
- cold or infection that lasts a long time
- muscle weakness
- black or tarry stool
**What storage conditions are needed for this medicine?**
Keep this medication in the container it came in, tightly closed, and out of reach of children. Store it at room temperature and away from excess heat and moisture (not in the bathroom). Throw away any medication that is outdated or no longer needed. Talk to your pharmacist about the proper disposal of your medication.

**What other information should I know?**
Keep all appointments with your doctor and the laboratory. Your doctor will order certain lab tests to check your response to dexamethasone. Checkups are especially important for children because dexamethasone can slow bone growth.
If your condition worsens, call your doctor. Your dose may need to be adjusted.
Carry an identification card that indicates that you may need to take supplementary doses (write down the full dose you took before gradually decreasing it) of dexamethasone during periods of stress (injuries, infections, and severe asthma attacks). Ask your pharmacist or doctor how to obtain this card. List your name, medical problems, drugs and dosages, and doctor's name and telephone number on the card.
This drug makes you more susceptible to illnesses. If you are exposed to chicken pox, measles, or tuberculosis (TB) while taking dexamethasone, call your doctor. Do not have a vaccination, other immunization, or any skin test while you are taking dexamethasone unless your doctor tells you that you may.
Report any injuries or signs of infection (fever, sore throat, pain during urination, and muscle aches) that occur during treatment.

Your doctor may instruct you to weigh yourself every day. Report any unusual weight gain.

If your sputum (the matter you cough up during an asthma attack) thickens or changes color from clear white to yellow, green, or gray, call your doctor; these changes may be signs of an infection.

If you have diabetes, dexamethasone may increase your blood sugar level. If you monitor your blood sugar (glucose) at home, test your blood or urine more frequently than usual. Call your doctor if your blood sugar is high or if sugar is present in your urine; your dose of diabetes medication and your diet may need to be changed.

Do not let anyone else take your medication. Ask your pharmacist any questions you have about refilling your prescription.

It is important for you to keep a written list of all of the prescription and nonprescription (over-the-counter) medicines you are taking, as well as any products such as vitamins, minerals, or other dietary supplements. You should bring this list with you each time you visit a doctor or if you are admitted to a hospital. It is also important information to carry with you in case of emergencies.
Mr. Vipin Saxena | CEO

Cellular: +91-98-21050033
Cellular: +91-98-20150033
Direct: +91-22-65785588
FAX: +91-22-42950001

Wireline Purchase HELPDESK:
+91-22-65050001
+91-22-65650001

Wireline Sales HELPDESK:
+91-22-65500009
+91-22-65050009

Wireless 24x7 HELPDESK:
+9191-46-951951
+9191-46-950950

Blackberry Pin:
32E6500D | 32E65010 | 28415C58

Email:
apollo@Hotmail.Co.in
Sales@apollopharma.in
Export@apollopharma.in
purchase@apollopharma.in
www.apolloworld.in
www.apollopharma.in
www.apollopharmaceuticals.Net

Chat:
MSN Hotmail: VipinrSaxena
Skype NAME: VipinrSaxena
Rocketmail: VipinrSaxena
Google mail: VipinrSaxena
BlackBerry: 28415C58

Regd. Office :-
1104, Maker Chamber V,
Nariman Point
Mumbai, INDIA
Pin: 400021

Industrial Office
D-62, OIC India
Oshiwara Industrial Centre,
New Link Road,
Goregoan West,
Mumbai, INDIA
Pin: 400104

Manufacturing Unit Address:
Plot No. 117A,
Village: Chamble
Near MonaTona Limited, Wada,
Maharashtra,
PIN: 421312 | INDIA

Email:
apollo@Hotmail.Co.in
Sales@apollopharma.in
Export@apollopharma.in
purchase@apollopharma.in

Dexamethasone

CAS Number: 50-02-2
Molecular Weight: 392.4611 g/mol
Molecular Formula: C_{22}H_{29}FO_{5}
Systematic (IUPAC): (1R,2S,10S,11S,13R,14R,15S,17S)-1-fluoro-14,17-
dihydroxy-14-(2-hydroxycetyl)-2,13,15-
trimethyltetra
cyclo[8.7.0.0^{2,7}.0^{11,15}]heptadeca-3,6-dien-5-one
Dexamethasone

CAS Number : 50-02-2
Molecular Weight : 392.4611 g/mol
Molecular Formula : C_{22}H_{23}FO_5
Systematic (IUPAC) : (1R,2S,10S,11S,13R,14R,15S,17S)-1-fluoro-14,17-dihydroxy-14-(2-hydroxyacetyl)-2,13,15-trimethyltetraacyclo[8.7.0.0^{2,7}.0^{11,15}]heptadeca-3,6-dien-5-one
Dexamethasone

CAS Number: 50-02-2
Molecular Weight: 392.4611 g/mol
Molecular Formula: C_{22}H_{25}FO_{5}
Systematic (IUPAC): (1R,2S,10S,11S,13R,14R,15S,17S)-1-fluoro-14,17-dihydroxy-14-(2-hydroxyacetyl)-2,13,15-trimethyltetrayclo[8.7.0.0^{2,7}.0^{11,15}]heptadeca-3,6-dien-5-one