



# Musculoskeletal Disorder

Our skeleton provides our body with strength, structure, and support. Without our bones we could not sit, stand, dance, play, or lie down and read a book. It is therefore vitally important that we protect our bones throughout our lives. Getting enough calcium as well as resistance strength training are crucial to the development and maintenance of healthy bones.

Holding our skeleton together are hundreds of individual muscles whose health depends on our nutritional intake as well as physical activity. To maintain muscle mass and strength, one should engage in a variety of physical activities.

## Musculoskeletal Disorders

Musculoskeletal disorders denote any abnormalities or illnesses that affect either the muscular or skeletal system. Examples of muscular disorders include foot drop (when the ankles and toes turn upward) and shin splints (inflammation of the connective tissue on the calf). Skeletal disorders are varied and many, and two examples are bone spurs (bony projections on joints) and arthritis (inflammation and pain in the joints). These disorders are often painful and debilitating if left untreated, but many successful treatments and therapies exist to make the conditions more manageable.

| Indication                | Company                       | Product                                       | Phase |
|---------------------------|-------------------------------|---|-------|
| Musculoskeletal Disorders | <b>Impax Laboratories Inc</b> | Orphenadrine Citrate Extended Release Tablets | M     |

## Osteoarthritis

Osteoarthritis, also called degenerative joint disease, is the most common type of arthritis. It is associated with a breakdown of cartilage in joints and can occur in almost any joint in the body. It most commonly occurs in the weight bearing joints of the hips, knees and spine. It can also affect the fingers, thumbs, neck and large toes. It usually does not affect other joints unless previous injury or excessive stress is involved.

| Indication                          | Company                         | Product                        | Phase |
|-------------------------------------|---------------------------------|--------------------------------|-------|
| Pain associated with Osteoarthritis | <b>Anesiva Inc</b>              | Adlea / ALGRX 4975             | II    |
|                                     | <b>Anesiva Inc</b>              | Adlea / ALGRX 4975 (capsaicin) | II    |
| Osteoarthritis                      | <b>Next Pharmaceuticals Inc</b> | Citrofen                       | M     |
|                                     | <b>Teikoku Pharma USA Inc</b>   | Seltouch (felbinac)            | M     |

## Osteopetrosis

Osteopetrosis is an extremely rare inherited disorder in which the bones become dense and harden. In normal bone formation, there is a balance between osteoblasts which create bone tissue and osteoclasts which destroy bone tissues. Patients with osteopetrosis have too few osteoclasts so too much bone is created. Though seemingly contradictory, those with this disease have bones which are more brittle than normal. Mild cases usually do not show signs of the disease, whereas more serious forms can result in stunted growth, deformity, increased likelihood for fractures and anemia. The extra bone can also put pressure on surrounding tissues, leading to blindness, facial paralysis and deafness.

| Indication    | Company              | Product                         | Phase |
|---------------|----------------------|---------------------------------|-------|
| Osteopetrosis | <b>InterMune Inc</b> | Actimmune (interferon gamma-1b) | M     |

## Osteoporosis

Osteoporosis is a disease that weakens bones, increasing the risk of sudden and unexpected fractures. Literally meaning “porous bone,” it results in an increased loss of bone mass and strength. The disease often progresses without any symptoms or pain. Many times, osteoporosis is not discovered until weakened bones cause painful fractures usually in the back or hips. Unfortunately, once a person has an osteoporotic fracture, he or she is at high risk of having another. These fractures can be debilitating.

| Company               | Product           | Phase | Indication   |
|-----------------------|-------------------|-------|--------------|
| <b>OsteoCorp Inc</b>  | Osoprol-CR        | II    | Osteoporosis |
| <b>OsteoCorp Inc</b>  | Osoprol-TD        | II    |              |
| <b>Osteologix Inc</b> | NB S101 / NBS-101 | II    |              |
| <b>Osteologix Inc</b> | NBS-101           | II    |              |

## Spasm

When you experience a sudden involuntary muscle contraction, you are experiencing what is known as a spasm. They can also occur in a group of muscles, a hollow organ, or an orifice. Spasms are frequently accompanied by a quick burst of pain, though it is usually harmless and ends after a few minutes. Nobody really knows what causes spasms, but they may be due to a large number of medical conditions.

| Company                       | Product                                  | Phase | Indication |
|-------------------------------|--|-------|------------|
| <b>Impax Laboratories Inc</b> | Dantrolene Sodium Capsules               | M     | Spasm      |
| <b>Johnson &amp; Johnson</b>  | Flexeril (cyclobenzaprine hydrochloride) | M     |            |