



## Induced Spawning of Cultured Fish Using Ovaprim®

### Product Information

#### General Features:

Ovaprim® is a liquid, peptide supplement that is used:

- To compress the spawning season.
- To coordinate spawning times.
- To increase milt production in males.
- Safely and with predictable results.

Ovaprim® utilizes the fish's own endocrine system to safely induce maturation and coordinate spawning dates. When used in the normal spawning cycle, Ovaprim® can synchronize and coordinate maturation in treated fish by significantly advancing maturation without affecting viability or fecundity. Ovaprim® has been tested and proven effective in salmonids and several other cultured species including carp and catfish. Ovaprim® is a licensed and registered in several countries.

#### Product Description:

Ovaprim®

- Contains an analogue of salmon GnRH, the native peptide found in most teleost fish.
- Also contains a dopamine inhibitor that is required in many cultured fish species.
- Is a peptide supplement that is delivered in an inert vehicle.
- Comes in a formulated concentration that can be used in any size of fish.
- Will begin to induce maturation immediately (species dependent) after injection for fast results.

A single dose of Ovaprim® is normally sufficient to induce maturation. Initial priming doses can be used to potentiate maturational effects. Injections of Ovaprim® are delivered to the peritoneal (abdominal) cavity using a standard needle and syringe. Ovaprim® can be used in photoperiod-controlled or temperature-controlled fish and can be used in conjunction with other therapeutants as advised by a veterinarian.

#### Applications:

Ovaprim® has greatest efficacy when used:

- On fish with a documented history of spawning dates.
- To synchronize and coordinate maturation during the normal spawning season.
- To advance spawning times of later spawning fish within the normal spawning season.
- To increase milt production in males.

#### Method of Action:

In natural spawning, nerve cells in the brain deliver GnRH to the pituitary. The GnRH serves to liberate gonadotropins from pituitary cells. The gonadotropins then direct maturation of the gonads through

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gonadal steroid hormones. Ovaprim® contains an analogue of salmon GnRH and a brain neurotransmitter (dopamine) inhibitor. The GnRH in Ovaprim® elicits the release of stored gonadotropins from the pituitary. The dopamine inhibitor serves to remove other inhibition of GnRH release. The outcome of using Ovaprim® is a burst of maturational hormones from the pituitary that induces final maturation of the gametes via endogenous gonadal steroid hormones. These steroid hormones are essential to final gamete maturation. The final maturation of gametes using Ovaprim® does not interfere with spawning behavior or gamete viability.

Ovaprim® can expedite the maturation process in a predictable and repeatable fashion. Ovaprim® supplies an exogenous source of salmon GnRH analogue which is more potent than either native salmon GnRH or LHRH. When used during the spawning season, the salmon GnRH analogue in Ovaprim® immediately promotes the release of stored gonadotropins from the pituitary. This action of using the fishes' own endocrine system works without adversely affecting viability or fecundity.

## When to Use:

Ovaprim® has the following uses:

- Stimulates milt production for a longer period and for greater volume.
- Moves fish forward in the spawning season.
- Maximizes reproductive potential in all spawners within a population.
- Conserves genetic material in a population, between populations or in endangered stocks.
- Coordinates maturation during the normal spawning season:
- Spawns a population in a shorter period of time.
- Maximizes hatchery labour and infrastructure by concentrating efforts.
- Moves offspring through life stages as a tightly-packed group according to spawning date.
- Reduces overlap of hatchery duties due to protracted development of hatchery fish.
- May re-start stalled maturation.
- Using Ovaprim® post-transport may reduce the incidence of transport shock.

## How to Use:

Anesthetize the fish as directed by a veterinarian using the appropriate dose of TMS (MS-222, Tricane methanesulphonate) or Aquacalm (Metomidate hydrochloride). Once anesthetized, weigh the fish and return to the anesthetic bath. Determine the dose for that fish. If the population has a small variance in median weight, a single dose of Ovaprim® can be used for all fish that negates weighing. Work with sterile equipment and clean surfaces to limit infection potential.

For use in salmonids: invert the fish and hold head down in the anesthetic bath. This reduces the pressure on the fish's gills caused by the weight of internal organs as you invert and suspend the fish. Under the fishes left pelvic fin is a depression that has few or no scales. This area also has a thin body wall. At this location penetrate the body wall and slowly deliver the Ovaprim® into the body cavity. The suspended fish will have its gonads at the forward portion of the body cavity and the left gonad is generally smaller due to the positioning of the liver. Observe if there is any bulging of adjacent tissues; this indicates an intramuscular or subcutaneous injection and reinsertion of the needle will be required.

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Before withdrawing the needle, leave it in place for a few seconds after delivery of the Ovaprim®; this will prevent back-seepage. Transfer the fish to a clean aerated bath to recover.

For other, smaller species: secure fish on a soft wet surface such as a sponge. The heat from your hand may harm some smaller, coldwater fish; handling for extended periods should be avoided. Place the fish on its side and inject into the rear abdominal cavity to avoid contact with internal organs. Smaller fish may require an appropriate needle size that will take longer to deliver the liquid. As with salmonids, leave the needle in place for a moment after delivery to prevent seepage. Transfer the fish to a clean aerated bath to recover.

## Precautions:

- Ensure instruments and affected areas are clean.
- Keep anesthetics and Ovaprim® out of direct sunlight.
- Use a needle guard to limit the penetration of the needle into the fish.
- Ovaprim® is viscous. Use an appropriately gauged needle and syringe. Do not warm the liquid.
- Intramuscular injections are also possible, but the injection site may bleed.
- Check that any other treatment of the fish is not contraindicated.

## Species List:

Ovaprim® contains salmon GnRH analogue. Salmon GnRH is common to most teleost fish. Ovaprim® can be used on all teleost fish including: salmon, catfish, perch and perch-like fish, groundfish such as flounder, halibut, cod and sablefish. Ovaprim® can also be used on fish such as sturgeon, gars, bowfin and others.

## Predicted Results:

Ensure fish are anesthetized prior to handling. Treated fish should be checked for signs of maturation 4-10 days post-treatment for salmonids and after 4-12 hours for most warm water species treated during the spawning season. When checking for ripeness, a steady stream of eggs or milt and a soft abdomen is a reliable indicator of full maturation. Males may respond in a shorter period of time and will produce copious amounts of milt throughout the spawning season.

## Considerations:

Ovaprim® serves to mature fish in advance of the normal population spawning distribution. Ensure both males and females are injected in equal number. If you are using Ovaprim® for the first time, consider including an equal amount of untreated fish in your plan as a control group. This will allow a reliable comparison of treatment.

There are limits to how far spawning date can be advanced in a given population. Unrealistic dates of advancing maturation should be avoided in first-time users. Duration of the normal spawning season is another consideration. Maturation date can be readily moved, but if the spawning season for a population is long, early spawning fish within the population will be induced to mature and late-

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spawning fish may be unaffected. Therefore, grading for maturation would be recommended for this population and treated as two groups with two different treatment times. Treatment of fish with a single dose of Ovaprim® is only affective in fish that are within or near their natural spawning season. Further advancement of spawning date can be achieved with repeated doses or by using Ovaplant implants.

## **Presentation:**

Ovaprim® is a liquid shipped in resealing bottle containing 10 ml. The liquid is formulated at a fixed concentration. Varied doses are achieved by delivering fewer or greater volumes. The liquid vehicle is a biodegradable compound that is not harmful to fish or humans. Ovaprim® should be stored in a dark environment at room temperature or colder. Avoid contact with direct sunlight.

## **Safety and Handling:**

As with any chemical compound, humans should not consume Ovaprim®, avoid direct contact. Keep out of reach of children. Keep the bottle upright in storage and between uses.