



## Paclitaxel- protein bound particles for Injectable suspension a choice of drug for metastatic breast carcinoma

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### ABSTRACT

Paclitaxel Protein Bound Particles is a type of Medical Treatment Called Chemotherapy. The Purpose of Chemotherapy to Kill Cancer Cell or Prevent the Growth. When cancer develops from Breast tissue signs of breast Cancer may include a lump in the Breast, a change in Breast Shape, dimpling of the skin fluid coming from nipple, or a red scaly patch of skin. May be pain swollen lymph nodes, shortness of breath or yellow skin

**Key words:** Paclitaxel (Protein Bound Particles), Neoplastic drug, Metastatic Breast cancer

### INTRODUCTION:

Under Normal Conditions the Cell in Your Body divide and growth in an orderly controlled way. Cell division and growth are necessary for the human body to perform its functions and to repair itself, when necessary cancer cell are different from normal cell because they are not able to control their own growth .The Reasons for this abnormal growth are not yet fully under stood.

"A Tumor is a mass of unhealthy Cells that are dividing and growing fast and in an uncontrolled way.

When a Tumor invades surrounding healthy body tissue is known as a malignant tumor.

### Breast Cancer:

When cancer develops from Breast tissue signs of breast Cancer may include a lump in the Breast, a change in Breast Shape, dimpling of the skin fluid coming from nipple, or a red scaly patch of skin. May be pain swollen lymph nodes, shortness of breath or yellow skin

### Description:

Paclitaxel (Protein Bound Particles) for injectable suspension in an albumin bound from paclitaxel with mean particle size of approximately 130 nanometer Paclitaxel (Protein Bound Particles) is supplied as a white to yellow sterile lyophilized powder for reconstitution with 20ml of 0.9% sodium chloride injection .each single vial contain 100mg of paclitaxel and approximately 900mg of Human albumin .Paclitaxel is obtained from Taxus media : Highly lipophilic, insoluble in water

### Pharmacology:

Paclitaxel protein bound Particles for Injectable suspension is an antimicrotuble agent that promotes the assembly of microtubules from tubulin dimmers and stabilizes microtubules by preventing depolymerization Pharmacokinetics of total Paclitaxel Following 30 and 180 minutes infusion of Paclitaxel (Protein Bound Particles) at dose level of 80 to 375mg/m<sup>2</sup> were determined in clinical studies

### 3-Materials and Method:

Paclitaxel (Protein-bound Particles) Clinical dose 260mg/m<sup>2</sup> (**Preparation for intravenous administration**) Paclitaxel (Protein Bound Particles) is supplied as a sterile lyophilized powder for reconstitution before used.

### Method:

1-Aseptically Reconstitute each vial by injection 20ml of 0.9% sodium chloride injection USP

2-Slowly inject to 20ml of 0.9% sodium chloride injection USP .over a minimum of 1 minute using the sterile syringe to direct the solution flow on to the inside Wall of the vial.

3-Do not inject the 0.9% sodium chloride injection USP directly on to the lyophilized cake as this will result in foaming

4-Once the injection is complete allow the vial to sit for a minimum of 5 minutes to ensure proper wetting of the lyophilized powder

5- Gently swirl and invert the vial solely for at least 2 minutes until complete dissolution of any cake. 1 Powder occurs avoid generation of foam.

6- If foaming or clumping occurs stand solution for at least 15 minutes until foam subsides. Each ml of reconstituted formulation will contain 5mg/ml Paclitaxel.

**Handling of Paclitaxel (Protein –Bound particles):**

- 1-Wearing of 3M mask
- 2-Disposable cap, apron, goggles
- 3-Mask
- 4-Gloves

**Contraindications:**

Paclitaxel (Protein Bound Particles) therapy should not be administered to patients with baseline neutrophil counts of less than 1500cell/mm<sup>3</sup>

**Side effects of Paclitaxel (Protein bound Particles):**

- 1- Alopecia
- 2- Low red blood cell count
- 3- Mucositis
- 4- Joint and muscle pain
- 5- Diarrhea
- 6- Heart and blood vessel effect
- 7- Irritation at the injection site

**Caution:**

Paclitaxel (Protein Bound Particles) could harm the fetus when given to pregnant woman.

**Dosage and administration:**

Paclitaxel (Protein Bound Particles) for injectable suspension bound particles for injectable suspension is 260mg/m<sup>2</sup> administered intravenously over 30 minutes every 3 weeks.

**Preparation and administration precautions:**

Paclitaxel (Protein Bound Particles) is a cytotoxic anticancer drug used gloves is recommended wash the skin immediately and thoroughly with soap and water.

**Storage condition:** - 2°C to 8°C

**Stability:** Reconstituted solution stable up to 8HRS at 2°C to 8°C

**4-Discussion:** Paclitaxel (Protein Bound Particles) for injectable Suspension is an albumin bound form. The purpose of chemotherapy is kill cancer cells or prevent their growth. Severe allergic reactions or uncommon and premedication is not required. Paclitaxel (Protein Bound Particles) is injected into vein (I.V) infusion over 30 minutes. Paclitaxel (Protein Bound Particles) can cause fetal harm when administered to a pregnant woman. The metabolism of Paclitaxel is catalyzed by CYP2C8 and CYP3A4. In the absence of formal clinical drug interaction studies, caution should be exercised when administering.

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