Truxima® (rituximab-abbs) – New biosimilar approval

- On November 28, 2018, the FDA announced the approval of Teva/Celltrion's Truxima (rituximab-abbs), biosimilar to Genentech/Biogen's Rituxan® (rituximab).
  - Truxima is the first FDA-approved biosimilar to Rituxan.
  - Truxima shares 3 of 4 non-Hodgkin's lymphoma (NHL) indications with Rituxan.

- Truxima and Rituxan are approved for the treatment of adult patients with NHL:
  - Relapsed or refractory, low grade or follicular, CD20-positive B-cell NHL as a single agent
  - Previously untreated follicular, CD20-positive, B-cell NHL in combination with first line chemotherapy and, in patients achieving a complete or partial response to a rituximab product in combination with chemotherapy, as single-agent maintenance therapy
  - Non-progressing (including stable disease), low-grade, CD20-positive, B-cell NHL as a single agent after first-line cyclophosphamide, vincristine, and prednisone (CVP) chemotherapy.

- In addition, Rituxan is approved for the treatment of adult patients with NHL:
  - Previously untreated diffuse large B-cell, CD20-positive NHL in combination with cyclophosphamide, doxorubicin, vincristine, prednisone or other anthracycline-based chemotherapy regimens.

- Rituxan is also approved for the treatment of adult patients with chronic lymphocytic leukemia, rheumatoid arthritis, granulomatosis with polyangiitis (Wegener's granulomatosis) and microscopic polyangiitis, and pemphigus vulgaris.

- A biosimilar product is a biological agent that is considered highly similar to an already-approved biological drug, known as the reference product. Biological products are generally derived from a living organism and can come from many sources, including humans, animals, microorganisms or yeast.
  - A biosimilar product must show no clinically meaningful differences in terms of safety and effectiveness from the reference product. Only minor differences in clinically inactive components are allowable in biosimilar products.
  - In addition, a biosimilar product may only be approved for the indication(s) and condition(s) that have been FDA approved for the reference product, and must have the same mechanism(s) of action, route(s) of administration, dosage form(s) and strength(s) as the reference product.

- Truxima is approved as a biosimilar to Rituxan, ***not*** as an interchangeable product.

- The approval of Truxima is based on a review of analytical, non-clinical, pharmacokinetic and clinical data confirming that Truxima is highly similar to Rituxan. An efficacy, pharmacokinetic and safety study conducted in patients with follicular lymphoma demonstrated non-inferiority between Truxima and Rituxan.

- Similar to Rituxan, Truxima carries a boxed warning for fatal infusion reactions, severe mucocutaneous reactions, hepatitis B virus reactivation, and progressive multifocal leukoencephalopathy.

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- Other warnings and precautions of Truxima include tumor lysis syndrome, infections, cardiovascular adverse reactions, renal toxicity, bowel obstruction and perforation, immunization, and embryo-fetal toxicity.

- The most common adverse reactions (≥ 25%) with Truxima use in NHL treatment were infusion reactions, fever, lymphopenia, chills, infection, and asthenia.

- The recommended dose of Truxima in NHL is 375 mg/m^2 as an intravenous infusion according to the following schedules:

    — Relapsed or refractory, low-grade or follicular, CD20-positive, B-Cell NHL: administer once weekly for 4 or 8 doses.
    — Retreatment for relapsed or refractory, low-grade or follicular, CD20-positive, B-Cell NHL: administer once weekly for 4 doses.
    — Previously untreated, follicular, CD20-positive, B-Cell NHL: administer on day 1 of each cycle of chemotherapy, for up to 8 doses. In patients with complete or partial response, initiate Truxima maintenance eight weeks following completion of a rituximab product in combination with chemotherapy. Administer Truxima as a single-agent every 8 weeks for 12 doses.
    — Non-progressing, low-grade, CD20-positive, B-Cell NHL, after first-line CVP chemotherapy: following completion of 6 to 8 cycles of CVP chemotherapy, administer once weekly for 4 doses at 6-month intervals to a maximum of 16 doses.
    — Consult the Truxima drug label for further information about dosing.

- Consult the Rituxan drug label for dosing recommendations for additional indications.

- Teva/Celltrion's launch plans for Truxima are pending. Truxima will be available as 100 mg/10 mL and 500 mg/50 mL single-dose vials.