Product description

# Aim

1. Provide some existing examples as basis.

2. Decide on the product name/mechanism this week.

2. Reproduce the provided example - “Case Study Group C Drug Project Description.docx”.

3. To be uploaded to moodle by Thurs 1st Sept (but sooner would be better).

# Our product

**Product name**:

**Treatment**:

**Mechanism/target**:

**Discussion**:

# Examples

Examples of monoclonal antibodies (mAb) used for the treatment of tumor/cancer. I have no preference; the following are the first examples I have found. There is a [specific nomenclature](https://en.wikipedia.org/wiki/Nomenclature_of_monoclonal_antibodies) for naming mAbs. Traditionally, unmodified antibody names end with “mab”. Naming nowadays is complex but anything ending with “mab” and approved/Phase III is likely to make a good example.

This table: *literature\_general > mAb\_technology >* [*roche\_approved\_mAb\_oncology\_examples.csv*](https://drive.google.com/file/d/1-LFi4d_1tIprTd6ONXPRi4W9hpQ7T0w3/view)

contains all approved mAb oncology treatments from Roche. Sourced from [their pipeline page from Roche](https://www.roche.com/solutions/pipeline/#f24b5f67-0000-422b-b6a0-68b7d67a513d) which has good examples.

**Producer**: SOBI.

**Product name**: loncastuximab (tesirine).

**Treatment**: diffuse large B-cell lymphoma (DLBCL).

**Mechanism/target**: An antibody-drug conjugate (ADC) composed of a humanized antibody targeting the protein CD19. Used for treatment.

**Discussion**: Not a good example, this is too rare and the drug is too complex.

**Producer**: Roche

**Product name**: Atezolizumab, RG7446, Tecentriq

**Treatment**: adjuvant non-small cell lung cancer (NSCLC), and others.

**Mechanism/target**: It is a fully [humanized](https://en.wikipedia.org/wiki/Humanized_antibody), engineered [monoclonal antibody](https://en.wikipedia.org/wiki/Monoclonal_antibody) of [IgG1](https://en.wikipedia.org/wiki/Immunoglobulin_G) [isotype](https://en.wikipedia.org/wiki/Isotype_(immunology)) against the protein [programmed cell death-ligand 1](https://en.wikipedia.org/wiki/Programmed_cell_death-ligand_1) (PD-L1). Blocks (PD-1) and CD80 receptors (B7-1Rs). High expression of PD-1 on some tumors reduces the antitumour immune response.

**Discussion**: In trials 2015, fast tracked, 2016, approved 2016, combined with bevacizumab as standard care 2018, etc.

**Producer**: Roche

**Product name**: Pertuzumab, RG6264, Perjeta.

**Treatment**: used in combination with [trastuzumab](https://en.wikipedia.org/wiki/Trastuzumab) and [docetaxel](https://en.wikipedia.org/wiki/Docetaxel) for the treatment of metastatic [HER2](https://en.wikipedia.org/wiki/HER2)-positive [breast cancer](https://en.wikipedia.org/wiki/Breast_cancer); it also used in the same combination as a [neoadjuvant](https://en.wikipedia.org/wiki/Neoadjuvant) in early HER2-positive breast cancer.

**Mechanism/target**: It inhibits the [dimerization](https://en.wikipedia.org/wiki/Protein_dimer) of HER2 with other HER receptors, which prevents them from [signalling](https://en.wikipedia.org/wiki/HER2/neu#Signal_transduction) in ways that promote cell growth and proliferation. HER2 positive breast cancer is caused by ERBB2 gene amplification that results in overexpression of HER2 in approximately 15-30% of breast cancer tumors. Stimulates cell proliferation and cell growth.

**Discussion**:  [Genentech](https://en.wikipedia.org/wiki/Genentech) and was first approved in 2012, Europe in 2013, etc.

**Producer**: Genentech

**Product name**: Trastuzumab, Herceptin

**Treatment**:  [HER2 receptor positive](https://en.wikipedia.org/wiki/HER2_receptor_positive) breast cancer and stomach cancer. Alone or paired with chemotherapy.

**Mechanism/target**: Trastuzumab binds to domain IV of the extracellular segment of the HER2/neu receptor. It inhibits the dimerization of HER2 with other HER receptors, which prevents them from signalling in ways that promote cell growth and proliferation. HER2 positive breast cancer is caused by ERBB2 gene amplification that results in overexpression of HER2 in approximately 15-30% of breast cancer tumors. Stimulates cell proliferation and cell growth.

**Discussion**: Classic example, very well known, approval US 1998, EU 2000, WHO essential medicine.

**Producer**:

**Product name**:

**Treatment**:

**Mechanism/target**:

**Discussion**:

**Producer**:

**Product name**:

**Treatment**:

**Mechanism/target**:

**Discussion**:

Map

Description automatically generated

Fig 1. Cryo-EM map of HER2-trastuzumab-pertuzumab. Hao Y, Yu X, Bai Y, McBride HJ, Huang X (2019) Cryo-EM Structure of HER2-trastuzumab-pertuzumab complex. PLoS ONE 14(5): e0216095. <https://doi.org/10.1371/journal.pone.0216095>