Mirvetuximab soravtansine (Elahere®) for the treatment of adults with folate receptor-alpha (FRα) positive epithelial ovarian, fallopian tube and primary peritoneal cancer

| General | infor | mation |
|---------|-------|--------|
| | | |

Drug description [1]

Mirvetuximab soravtansine (Elahere®) is an antineoplastic monoclonal antibody-drug conjugate.

Indication [1]

Mirvetuximab soravtansine (Elahere®) is indicated for the treatment of adults with FRα positive epithelial ovarian, fallopian tube and primary peritoneal cancer.

Incidence [2]

In Austria, in 2022, a total of 718 women were newly diagnosed with ovarian cancer. The age standardised incidence rate¹ in Austria was in 2022 for females 14.1 per 100 000. As of 2022, prevalence in absolute numbers was 7197.

Current treatment [3]

The Onkopedia treatment recommendation for the treatment of ovarian cancer is displayed in Figure 1 of the Appendix.

Regulatory status EMA [1] FDA [4] Approval status: On September 19 2024, the Committee for Medicinal Products for Human Use (CHMP) Approval status: On March 22, 2024, the FDA approved mirvetuximab soravtansineadopted a positive opinion, recommending marketing authorisation for the medicinal product Elahere®. gynx (Elahere[®]) for adult patients with FR α positive, platinum-resistant epithelial The indication is as follows: ovarian, fallopian tube, or primary peritoneal cancer, who have received one to three Elahere[®] as monotherapy is indicated for the treatment of adult patients with $FR\alpha$ positive, platinumprior systemic treatment regimens. resistant high grade serous epithelial ovarian, fallopian tube, or primary peritoneal cancer who have received Accelerated approval was granted for this drug on November 14, 2022. one to three prior systemic treatment regimens. Elahere® should be prescribed and supervised by physicians experienced in the use of cancer treatments. The indication is as follows: Elahere® is indicated for the treatment of adult patients with FRa positive, platinum-Detailed recommendations for the use of this product will be described in the summary of product characteristics, which will be published in the European public assessment report (EPAR) and made available resistant epithelial ovarian, fallopian tube, or primary peritoneal cancer, who have in all official European Union languages after the marketing authorisation has been granted by the European received one to three prior systemic treatment regimens. Select patients for therapy Commission. based on an FDA-approved test. Other indications: Other indications: None. None. \checkmark **Orphan status** Marketing authorisation holder in EU [1] AbbVie Deutschland GmbH & Co. KG Costs Not yet determined.

¹ European Standard Population 2013.



Posology [5]²

The recommended dose of Elahere[®] is 6 mg/kg adjusted ideal body weight (AIBW) administered once every 3 weeks (21-day cycle) as an intravenous infusion until disease progression or unacceptable toxicity.

The total dose of Elahere® is calculated based on each patient's AIBW using the following formula:

AIBW = Ideal Body Weight (IBW [kg]) + 0.4*(Actual weight [kg] – IBW)

Female IBW (kg) = 0.9*height(cm) – 92

Premedicate with a corticosteroid, antihistamine, antipyretic, antiemetic, ophthalmic topical steroids, and lubricating eye drops.

Warnings and precautions [5]²

Ocular Disorders

Elahere[®] can cause severe ocular adverse reactions, including visual impairment, keratopathy (corneal disorders), dry eye, photophobia, eye pain, and uveitis. Ocular adverse reactions occurred in 61% of patients with ovarian cancer treated with Elahere[®]. 9% of patients experienced Grade 3 ocular adverse reactions, including visual impairment, keratopathy/keratitis (corneal disorders), dry eye, photophobia, and eye pain; and one patient (0.2%) experienced Grade 4 keratopathy. The most common (\geq 5%) ocular adverse reactions were visual impairment (49%), keratopathy (36%), dry eye (26%), cataract (15%), photophobia (13%), and eye pain (12%).

The median time to onset for first ocular adverse reaction was 1.2 months (range: 0.03 to 12.9). Of the patients who experienced ocular events, 49% had complete resolution, and 39% had partial improvement (defined as a decrease in severity by one or more grades from the worst grade) at last follow-up. Ocular adverse reactions led to permanent discontinuation of Elahere® in 0.6% of patients. Premedication and use of lubricating and ophthalmic topical steroid eye drops during treatment with Elahere® are recommended. Advise patients to avoid use of contact lenses during treatment with Elahere® unless directed by a healthcare provider. Refer patients to an eye care professional for an ophthalmic exam, including visual acuity and slit lamp exam prior to treatment initiation, every other cycle for the first 8 cycles, and as clinically indicated. Promptly refer patients to an eye care professional for any new or worsening ocular signs and symptoms. Monitor for ocular toxicity and withhold, reduce, or permanently discontinue Elahere® based on the severity and persistence of ocular adverse reactions.

Pneumonitis

Severe, life-threatening, or fatal interstitial lung disease, including pneumonitis, can occur in patients treated with Elahere[®]. Pneumonitis occurred in 10% of patients treated with Elahere[®], including 0.8% with Grade 3 events, and 1 patient (0.2%) with a Grade 4 event. One patient (0.2%) died due to respiratory failure in the setting of pneumonitis and lung metastases. Pneumonitis resulted in Elahere[®] dose reduction in 1%, dose interruptions in 3%, and permanent discontinuation in 3% of patients. Monitor patients for pulmonary signs and symptoms of pneumonitis, which may include hypoxia, cough, dyspnea, or interstitial infiltrates on radiologic exams. Infectious, neoplastic, and other causes for such symptoms should be excluded through appropriate investigations. Withhold Elahere[®] for patients who develop persistent or recurrent Grade 2 pneumonitis until symptoms resolve to \leq Grade 1 and consider dose reduction. Permanently discontinue Elahere[®] in all patients with Grade 3 or 4 pneumonitis. Patients who are asymptomatic may continue dosing of Elahere[®] with close monitoring.

Peripheral Neuropathy

Peripheral neuropathy occurred in 36% of patients with ovarian cancer treated with Elahere[®] across clinical trials; 2% of patients experienced Grade 3 peripheral neuropathy. Peripheral neuropathy adverse reactions included peripheral neuropathy (19%), peripheral sensory neuropathy (9%), paraesthesia (6%), neurotoxicity (3%), hypoaesthesia (2%), peripheral motor neuropathy (1%), neuralgia (0.4%), polyneuropathy (0.2%) and oral hypoesthesia (0.2%). The median time to onset of peripheral neuropathy was 1.3 months (range 0.03 to 29.1). Of the patients who experienced peripheral neuropathy, 28% had complete resolution and 13% had partial improvement (defined as a decrease in severity by one or more grades from the worst grade) at last follow-up. Peripheral neuropathy led to discontinuation of Elahere[®] in 0.4% of patients. Monitor patients for signs and symptoms of neuropathy, such as paraesthesia, tingling or a burning sensation, neuropathic pain, muscle weakness, or dysesthesia. For patients experiencing new or worsening peripheral neuropathy, withhold dosage, dose reduce, or permanently discontinue Elahere[®] based on the severity of peripheral neuropathy.

Embryo-Fetal Toxicity

Based on its mechanism of action, Elahere[®] can cause embryo-fetal harm when administered to a pregnant woman because it contains a genotoxic compound (DM4) and affects actively dividing cells. Advise pregnant women of the potential risk to a fetus. Advise females of reproductive potential to use effective contraception during treatment with Elahere[®] and for 7 months after the last dose.



| Study characteristics [6] | | | | | | | | | | | | | | | |
|---|----------------------------|--|---|--|--|--|------------------|---|--|--|---------------------------------|-----------|----------------|--|--|
| T N | rial name/ CT number | n | Intervention (I) | Comparator (C) | | PE | Median follow-up | Characteristics | | eristics | Biomarker | Funding | Publication(s) | | |
| NC | T04209855 MIRASOL | 453 (1:1) | Mirvetuximab soravtansine-gynx administered i.v. at a dose of 6 mg/kg of adjusted ideal body weight every 3 weeks. | Paclita liposom or t | kel, pegylated al doxorubicin opotecan. ³ | PFS (investigator- assessed) | Not reported | open-label, multicentre, phase 3 trial | | abel, ntre, 5 trial | CA-125 | ImmunoGen | MIRASOL [6] | | |
| Inclusion criteria ⁴ | | | | Exclusion criteria | | | | | Patient characteristics at baseline I (n=227) vs. C (n=226) | | | | | | |
| weight every 3 weeks. Inclusion criteria ⁴ Female patients ≥ 18 years of age. Confirmed diagnosis of high-grade serous EOC, primary peritoneal cancer, or fallopian tube cancer. Platinum-resistant disease. Progressed radiographically on or after their most recent line of therapy. Willing to provide an archival tumour tissue block or slides or undergo a procedure to obtain a new biopsy using a low risk, medically routine procedure for immunohistochemistry confirmation of FRα positivity. Patient's tumor must be positive for FRα expression as defined by the Ventana FOLR1 CDx assay. At least one lesion that meets the definition of measurable disease by RECIST v1.1. Must have received at least 1 but no more than 3 prior systemic lines of anticancer therapy, and single-agent therapy is appropriate as the next line of treatment. Eastern Cooperative Oncology Group Performance Status of 0 or 1. Time from prior therapy: | | | | Endometrioid, clear cell, mucinous, or sarcomatous histology, mixed tumours containing any of the above histologies, or low-grade or borderline ovarian tumour. Primary platinum-refractory disease, defined as disease that did not respond to or has progressed within 3 months of the last dose of first line platinum-containing chemotherapy. Prior wide-field radiotherapy affecting at least 20% of the bone marrow. > Grade 1 peripheral neuropathy. Active or chronic corneal disorders, history of corneal transplantation, or active ocular conditions requiring treatment (uncontrolled glaucoma, wet age-related macular degeneration, active diabetic retinopathy with macular oedema, macular degeneration, presence of papilledema, and /or monocular vision). Serious concurrent illness or clinically relevant active infection. History of multiple sclerosis or other demyelinating disease and/or Lambert-Eaton syndrome. Clinically significant cardiac disease. Patients were assigned to PLD stratum only. History of cirrhotic liver disease (Child-Pugh Class B or C). Previous clinical diagnosis of non-infectious interstitial lung disease including non-infectious pneumonitis | | | | Patient characteristics at baseline I (n=227) vs. C (n=226) | | | | | | | |
| | willing and a adhere to th | able to sign the informed consent form and to ne protocol requirements.Required use of folate-containing supplements.Prior hypersensitivity to monoclonal antibodies. | | | | ning supplements. International antibodies. | | * | ECOG po | erformance-statu <u>0: 130 (57.3</u>) vs | ıs score — no. (% 120 (53.1) | 6) | | | |

³ Paclitaxel (80 mg per square meter of body-surface area, administered i.v. on days 1, 8, 15, and 22 of a 4-week cycle), pegylated liposomal doxorubicin (40 mg per square meter, administered i.v. on days 1 of a 4-week cycle), or topotecan (4 mg per square meter, administered i.v. on days 1, 8, and 15 of a 4-week cycle, or 1.25 mg per square meter, administered i.v. on days 1, 8, and 15 of a 4-week cycle, or 1.25 mg per square meter, administered i.v. on days 1, 8, and 15 of a 4-week cycle, or 1.25 mg per square meter, administered i.v. on days 1 to 5 of a 3-week cycle).

⁴ For detailed in-and exclusion criteria, please see trial protocol.

| Women of childbearing potential must agree to use highly effective contraceptive method. Women must have a negative pregnancy test within 4 days prior to the first dose of study drug. | Women who are pregnant or lactating. Prior treatment with MIRV or other FRα targeting agents. Untreated or symptomatic central nervous system metastases. History of other malignancy within 3 years prior to randomisation. Prior hypersensitivity reactions to study drugs and/or any of their excipients. People who are detained through a court or administrative decision, receiving psychiatric care against their will, adults who are the subject of a legal protection order. Simultaneous participation in another research study, in countries or localities where this is the health authority guidance. | o o BRCA mu o I o I o I o I o i Previous I o i Previous I o i o i o i o i o i <lii< li=""> <lii< li=""> i i </lii<></lii<> | 1: 97 (42.7) vs 101 (44.7) 2: 0 vs 3 (1.3) Missing data: 0 vs 2 (0.9) mutation — no. (%) BRCA1 positive: 24 (10.6) vs 29 (12.8) BRCA2 positive: 9 (4.0) vs 7 (3.1) Negative or unknown: 198 (87.2) vs 190 (84.1) us lines of systemic therapy 1: 29 (12.8) vs 34 (15.0) 2: 90 (39.6) vs 88 (38.9) 3: 108 (47.6) vs 104 (46.0) us exposure — no. (%) Bevacizumab: 138 (60.8) vs 143 (63.3) PARP inhibitor: 124 (54.6) vs 127 (56.2) Taxane: 227 (100) vs 224 (99.1) Doxorubicin: or pegylated liposomal doxorubicin 130 (57.3) vs 133 (58.8) Topotecan: 1 (0.4) vs 2 (0.9) y platinum-free interval — no. (%) ≤ 12 mo: 146 (64.3) vs 142 (62.8) > 12 mo: 80 (35.2) vs 84 (37.2) Missing data 1 (0.4) vs 0 | | | | |
|--|---|---|--|--|--|--|--|
| | | 0 | >3 to ≤6 mo: 138 (60.8) vs 124 (54.9) >6 mo: 1 (0.4) vs 3 (1.3) | | | | |
| Effica | acy (I vs. C) | | Safety (I vs. C, n=218 vs. n=207) | | | | |
| Data cutoff date (March 6, 2023)TRAEs of any grade: $86.2\% vs 80.7\%$ PFS: median, 5.62 months (95% Cl, 4.34-5.95) vs median, 3.98 months (95% Cl, 2.86-4.47); P<0.001. | | | | | | | |
| | Patient-reported outcomes (I vs. C) [7] | | | | | | |
| The primary PRO assessment was defined as the number of patients achieving at least 15-point improvement at week 8/9 in the abdominal/ GI symptom scale of EORTC QLQ-OV28. 15-point improvement at week 8/9 was met in 21% of patient's vs 15.3% of patients (P= 0.2611). In the abdominal/GI symptom scale at week 8/9 there was a difference of -5.0 (95 % CI: $-8.31.6$; P=0.0041) favouring MIRV with continuous improvement at week 24 of -6.0 ($-10.21.8$; P=0.0056). | | | | | | | |

⁵ discontinuation due to AE(s)



| | met the i | mprovem | ent threshold at week 8/9 (P | =0.0318) | subscale score was | clinically mear | ningtui | . Sensitivity analysis u | ising the TT-poin | t thresho | na snowea tr | iat 29% OI | patient's vs | 10% 01 |
|---|---|--|--|------------------------------|---|---------------------------------------|---------------------|--|--|-----------------------|----------------------------------|----------------------------|------------------------------|------------------------|
| putients | | nprovenn | | 0.0010). | ESM | O-MCBS ve | rsion | 1.1 [8, 9] | | | | | | |
| Scale | Int. | Form | MG ST | 05 | MG 27 months | HR (95% C | l) | Score calculation PM Tox | | | | QoL | AJ | FM |
| | NC | 2a 2a | $>12 - \leq 24$ months | 03. | 3.7 months | 0.67 (0.50-0.6 | 89) | $HR \le 0.70 \text{ AND gain}$ | $R \le 0.70$ AND gain $\ge 3 - < 5$ months | | | - NA | | 3 |
| Risk of bias (RCT) [10] | | | | | | | | | | | | 3 | | |
| Adequate generation of randomisation sequence Adequate allocation concealme | | | | | Blinding | | Sel re | lective outcome porting unlikely | Other aspects bias | which inc | crease the risl | k of | f Risk of bias | |
| unclear ⁶ unclear risk | | | | no yes high risk low risk | | | yes Iow risk | yes ⁷ high risk | | | | unclear ⁸ | | |
| | | | | | | Ongoing t | rials | [11] | | | | | | |
| NCT nu | NCT number/trial name Description Estimated study completion date | | | | | | | | | | | | | |
| NCT05445778 Mirvetuximab Soravtansine With Bevacizumab Versus Bevacizumab as Maintenance in Platinum-sensitive Ovarian, Fallopian Tube, 04/2029 Or Peritoneal Cancer | | | | | | | | | | | | | | |
| A Study to Assess Adverse Events and Change in Disease Activity in Participants With Platinum-Resistant Advanced High-Grade Epithelial Ovarian, Primary Peritoneal, or Fallopian Tube Cancers With High Folate Receptor-Alpha Expression Treated With | | | | | | | | | 03/2028 | | | | | |
| | | | | in ve taxim | | Available as | sessr | nents | | | | | | |
| NICE ass [12]. | essment o | on Mirvet | uximab soravtansine for treat | ing folate | receptor alpha-pc | ositive platinum | n-resist | ant advanced epithel | ial ovarian, fallop | ian tube | or primary pe | eritoneal ca | ancer is in p | rogress |
| Other aspects and conclusions | | | | | | | | | | | | | | |
| On September 19, 2024, the CHMP adopted a positive opinion, recommending marketing authorisation for the medicinal product Elahere® for the treatment of adults with folate receptor- alpha (FRα) positive epithelial ovarian, fallopian tube and primary peritoneal cancer. This indication has also been approved by the FDA. MIRASOL (NCT04209855) is a phase 3, international, randomised, open-label trial comparing the efficacy and safety of MIRV with the investigator's choice of chemotherapy in the treatment of platinum-resistant, high-grade serous ovarian cancer. The study included female patients ≥ 18 years of age, with at least one but no more than three prior systemic lines of anticancer therapy and with a tumour positive for FRα expression. Key exclusion criteria included other histological cervical cancer subtypes; FIGO 2014 stage IVB disease; previous hysterectomy; and previous systemic therapy, immunotherapy, definitive surgery, or radiation. | | | | | | | | | | | | | | |
| The The bac | e original e risk of l | l and ada bias was | pted ESMO-MCBS were app unclear since it was not clear | lied, resul if a rando | ting in a magnitud | le of clinical bei e was used, and | nefit o d this r | f grade 3 with both so isk was further increa | cales. sed based on an | open-lab | bel design and | d industry- | funded | |
| Bes Ad¹ Soi | ides MIR vanced H avtansine | - ASOL, for igh-Grade e", as sear | this specific indication, there Epithelial Ovarian, Primary F ched from ClinicalsTrials.gov. | is anothe Peritoneal, | r study NCT06682 or Fallopian Tube | 988 investigatir Cancers With H | ng "Ad High F | lverse Events and Cha olate Receptor-Alpha | inge in Disease A Expression Treat | ctivity in ed With | Participants \ Intravenously | With Platin (IV) Infuse | um-Resistar ed Mirvetuxi | nt mab |
| ◆ Bas ma Pro | ed on the in predef tocol. | e final ana ined PRO | alysis, efficacy has been show was not statistically significa | n in terms nt. The sta | of improved PFS. tistically significan | However, it has t change in the | s to be e impro | e noted that half of th ovement using the 11 | e patients had an -point scale is of | ECOG p limited v | erformance s value, as it has | score of 0. s not been | The differen pre-specifie | ce in the ed in the |



 ⁶ Protocol does not state if any randomization sequence was used.
 ⁷ The study was sponsored by ImmunoGen (Acquired by Abbvie in 02/2024).
 ⁸ Based on the unclear randomization process.

Abbreviations: AE=adverse event, AIBW=Adjusted Ideal Body Weight, AJ=adjustment, C=comparator, CHMP=Committee for Medicinal Products for Human Use, CI=confidence interval, ECOG=Eastern Cooperative Oncology Group, EMA=European Medicines Agency, EOC=epithelial ovarian cancer, ESMO-MCBS= European Society of Medical Oncology – Magnitude of Clinical Benefit Scale, FRα=folate receptor alpha, MCBS=Magnitude of Clinical Benefit Scale, MG=median gain, FDA=Food and Drug Administration, FM=final magnitude of clinical benefit grade, HR=hazard ratio, I=intervention, IBW=Ideal Body Weight, Int.=intention, i.v.=intravenously, MIRV=Mirvetuximab soravtansine-gynx, n=number of patients, NICE=National Institute for Health Care Excellence, OS=overall survival, PE=primary endpoint, PFS=progression-free survival, PLD=pegylated liposomal doxorubicin, PM=preliminary grade, PRO= patient reported outcome, SAE=serious adverse event, ST=standard treatment.

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<u>Appendix – Figure 1:</u>

Therapy algorithm for recurrent ovarian cancer



Legend:

- Therapy with non-curative intent
- * note prior therapy and see approval status (German Version only)
- # Olaparib, niraparib, or rucaparib
- \$ see approval status (German Version only)
- TFIp, platinum-free interval; PARPi, PARP inhibitor PLD, pegylated liposomal doxorubicin