

To estimate the **Potential Peak Sales** for mirvetuximab soravtansine-gynx (Elahere) in the specified indication (FR α -positive, platinum-resistant epithelial ovarian, fallopian tube, or primary peritoneal cancer) in the US, EU5 (France, Germany, Italy, Spain, UK), China, and Japan, as well as the **\$ value of a 1% share of treated patients**, we need to follow a structured approach. This involves estimating the target patient population, treatment penetration, pricing, and market share. Since exact data may not be publicly available, I will use reasonable assumptions based on epidemiology, market trends, and oncology drug pricing. Please note that these are illustrative calculations and should be validated with primary data or market research reports.

Step 1: Define the Target Indication and Patient Population

Mirvetuximab soravtansine-gynx is approved for adult patients with **FR α -positive, platinum-resistant epithelial ovarian, fallopian tube, or primary peritoneal cancer** who have received 1–3 prior systemic treatments. We will estimate the eligible patient population in each geography.

Epidemiology of Ovarian Cancer

- Ovarian cancer incidence (including fallopian tube and peritoneal cancer) is approximately:
- **US**: ~19,000 new cases annually (American Cancer Society, 2023 estimate).
- **EU5**: ~34,000 new cases annually (based on GLOBOCAN 2020 data).
- **China**: ~55,000 new cases annually (GLOBOCAN 2020).
- **Japan**: ~13,000 new cases annually (GLOBOCAN 2020).
- Approximately **60–70%** of ovarian cancer patients develop platinum-resistant disease after initial treatment (based on literature).
- Of these, ~**30–40%** are estimated to be FR α -positive (based on clinical trial data for mirvetuximab and prevalence studies).
- Additionally, patients must have received 1–3 prior therapies, which further narrows the population to roughly **50%** of platinum-resistant cases (assumption based on treatment patterns).

Eligible Patient Population Estimate (Annual Incident Cases)

Using the above assumptions:

- **Platinum-resistant cases**: 60–70% of total incidence.
- **FR α -positive**: 30–40% of platinum-resistant cases.
- **1–3 prior therapies**: ~50% of the above.

| Region | Total Incidence | Platinum-Resistant (~65%) | FR α -Positive (~35%) | 1–3 Prior Therapies (~50%) | Eligible Patients (Annual) |

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US	19,000	12,350	4,323	2,161	~2,200
EU5	34,000	22,100	7,735	3,868	~3,900

China	55,000	35,750	12,513	6,256	~6,300	
Japan	13,000	8,450	2,958	1,479	~1,500	
Total	121,000	78,650	27,529	13,764	~13,900	

Note: These are rough estimates and may vary based on more precise data.

Step 2: Treatment Penetration and Market Share

- The problem assumes a **20–30% share of treated patients** for mirvetuximab soravtansine-gynx. This likely refers to the proportion of eligible patients who receive the drug (market penetration).

- Not all eligible patients will be treated due to factors like access, cost, physician preference, or competing therapies. We will assume a **base penetration rate of 50%** of eligible patients are treated with any targeted therapy, and mirvetuximab captures **20–30%** of this treated population.

Treated Patients Captured by Mirvetuximab

Region	Eligible Patients	Treated Patients (50%)	Mirvetuximab Share (20–30%)	Patients Treated with Mirvetuximab (Peak)	
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US	2,200	1,100	220–330	~275 (avg of 20–30%)	
EU5	3,900	1,950	390–585	~488 (avg of 20–30%)	
China	6,300	3,150	630–945	~788 (avg of 20–30%)	
Japan	1,500	750	150–225	~188 (avg of 20–30%)	
Total	13,900	6,950	1,390–2,085	~1,739	

Step 3: Pricing Assumptions

Mirvetuximab soravtansine-gynx is a targeted oncology drug, and pricing for such therapies is typically high in the US and varies by region due to healthcare systems and pricing negotiations.

- **US:** ~\$150,000–\$200,000 per patient per year (based on pricing for similar drugs like antibody-drug conjugates [ADCs]).

- **EU5:** ~\$80,000–\$120,000 per patient per year (lower due to price negotiations and reimbursement policies).

- **Japan:** ~\$100,000–\$150,000 per patient per year (similar to US but slightly lower).

- **China:** ~\$30,000–\$50,000 per patient per year (significantly lower due to pricing controls and market access challenges).

For simplicity, we'll use the midpoint of these ranges:

- US: \$175,000/year
- EU5: \$100,000/year
- Japan: \$125,000/year
- China: \$40,000/year

Step 4: Potential Peak Sales Calculation

Peak sales are calculated as:

Peak Sales = Number of Treated Patients × Annual Cost per Patient

Region	Patients Treated (Peak)	Annual Cost per Patient	Peak Sales (USD Million)
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US	275	\$175,000	\$48.1
EU5	488	\$100,000	\$48.8
China	788	\$40,000	\$31.5
Japan	188	\$125,000	\$23.5
Total	1,739	-	\$151.9 Million

Potential Peak Sales: Approximately **\$152 Million USD** annually across the US, EU5, China, and Japan, assuming a 25% average market share (midpoint of 20–30%).

Step 5: \$ Value of 1% Share of Treated Patients

A “1% share of treated patients” refers to 1% of the total **treated patient population** (assumed to be 50% of eligible patients, as calculated earlier).

Region	Total Treated Patients (50% of Eligible)	1% of Treated Patients	Annual Cost per Patient	\$ Value of 1% Share (USD)
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US	1,100	11	\$175,000	\$1.93 Million
EU5	1,950	19.5	\$100,000	\$1.95 Million
China	3,150	31.5	\$40,000	\$1.26 Million
Japan	750	7.5	\$125,000	\$0.94 Million
Total	6,950	69.5	-	\$6.08 Million

\$ Value of 1% Share of Treated Patients: Approximately **\$6.08 Million USD** across the US, EU5, China, and Japan.

Final Answers

1. **Potential Peak Sales** for mirvetuximab soravtansine-gynx in the specified indication (assuming 20–30% share, averaged at 25%):

~\$152 Million USD annually across the US, EU5, China, and Japan.

- US: ~\$48.1M
- EU5: ~\$48.8M
- China: ~\$31.5M
- Japan: ~\$23.5M

2. **\$ Value of 1% Share of Treated Patients:**

~\$6.08 Million USD across the US, EU5, China, and Japan.

- US: ~\$1.93M
- EU5: ~\$1.95M
- China: ~\$1.26M
- Japan: ~\$0.94M

Caveats and Assumptions

- **Epidemiology:** Patient population estimates are based on rough approximations of incidence, platinum resistance, FR α positivity, and prior therapy exposure.

- **Penetration and Market Share:** Assumed 50% of eligible patients are treated, with mirvetuximab capturing 20–30% (averaged at 25%). This may vary based on competition, access, and reimbursement.

- **Pricing:** Pricing assumptions are based on benchmarks for ADCs and may differ based on negotiations, discounts, or local policies.

- **Peak Sales Timing:** Peak sales are assumed to be achieved after market penetration stabilizes (typically 3–5 years post-launch), but no specific timeline is factored in.

For more accurate estimates, primary data from clinical trials, market access reports, or company guidance (e.g., ImmunoGen's investor presentations) should be consulted.