Roquefort Therapeutics PLC

Results and update on Midkine antibody program

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Midkine antibody in-vivo efficacy results and pursuit of an orphan drug indication (osteosarcoma)

Roquefort Therapeutics today announced the release of the first in vivo efficacy results for its anti-Midkine patented antibodies CAB-101 (ROQA2) and CAB-102 (ROQA1). The in vivo efficacy study tested the anti-cancer killing ability of CAB-101 and CAB-102 in a validated experimental model of osteosarcoma. Treatment with CAB-101 was found to produce a statistically significant reduction in lung metastasis, and CAB-102 was found to reduce proliferation (growth rate) of the primary tumour.

The in vivo safety results targeting metastatic breast cancer and metastatic lung cancer were announced in January 2023. Osteosarcoma is the third indication under Roquefort's anti-Midkine antibody program and the first orphan drug indication for the Company.

Hybridan's view: Roquefort's pursuit of an orphan drug indication reflects a strategic decision to also target rare cancers. The Food and Drug Administration (FDA) defines orphan drugs as those for diseases affecting fewer than 200,000 people in the U.S. Drug development companies can apply for Orphan Drug Designation (ODD) anytime during the clinical stage in order to access an accelerated regulatory pathway. Orphan drug trials are generally single arm (no placebo arm), nonrandomised, and open label. Safety Phase 1 trials are not usually required, and Phases 2 and 3 can be combined when the patient population is very low. Approved orphan drugs may be awarded market exclusivity for seven years in the USA and ten years in the EU and UK, in addition to tax credits and fee reductions.

According to the report by the Biotechnology Innovation Organization, Informa Pharma Intelligence and QLS Advisors published in 2021 based on 9,704 development programs in 2011–2020, immuno-oncology therapy R&D reported an overall LOA (likelihood of approval) of 12.4% vs 5.3% for all oncology approaches. Rare disease therapies were notably successful with an overall LOA of 17.0% a significantly higher success rate in clinical trials. Drivers of these successes include targeting molecularly defined causes of disease, regulatory incentives, and favourable reimbursement environments.

It is worth noting that Roquefort and Randox Laboratories are currently collaborating in research programs to identify new diagnostics for Midkine overexpressed cancers that may be treatable with Roquefort Midkine therapeutics. According to the same report, drug development programs with trials employing patient preselection biomarkers have a two-fold higher LOA (15.9%) than those that do not (7.6%).

Key Statistics:

Code	ROQ
Listing	LSE; OTCQB
Sector	Biopharma
Market cap*	£8.7m
Shares in issue*	129.15m
Current price*	6.75p
12-month high/low*	9p/6.375p
Free float**	55%

**Closing price on 16 June 2023. High/low based on closing prices. **Free float based on Hybridan estimates.*

Share Price Performance

Year to date	6%
Past 12 months	-13%
2021	75%

Source: Alpha Terminal

Financials Y/E Dec (£)

	Sales	EBIT	Net cash
2021	719	(917,433)	899,721
2022	-	(1,634,303)	2,322,974

Source: Company Data

Company Description

Roquefort Therapeutics is a drug and therapy discovery and development company for hard-to-treat cancers focusing on novel targets. All of its development programs are supported with licensed patents and anchored on Roquefort's own knowhow and intellectual property.

Roquefort has five best-in-class oncology drug development programs: (1) Midkine antibodies; (2) Midkine RNA therapeutics with novel anti-cancer gene editing action; (3) Midkine mRNA program; (4) Mesodermal Killer (MK) cell therapy with direct and nature-killer-mediated anti-cancer action; and (5) siRNA targeting novel STAT-6 target in solid tumours.

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Roquefort's anti-Midkine antibody program

Midkine, a heparin-binding protein, has long been known to be important in embryonic development. While barely detectable in healthy adults, Midkine is highly expressed during oncogenesis. Midkine hinders the normal immune response to tumours and promotes metastatic spread to other organs, thereby contributing to various levels of cancer progression and reduced patient survival. Oncogenesis is the process through which healthy cells become transformed into cancer cells.

Roquefort believes its knowhow and patent strategy (the combination of the exclusive license and the efforts to patent in-house R&D) have established the entry barrier in targeting Midkine.

Management also believes that the team is one year ahead of the rest of the field in the pre-clinical stage of developing reagents targeting the growth factor Midkine for treatment of cancer.

CAB-101 (humanised C-domain antibody) and CAB-102 (humanised N-domain antibody) are the patented medicines designed by Roquefort to target the novel Midkine prevalent in hard-to-treat cancers.

Roquefort partners with La Trobe University, Melbourne for Midkine antibody trials on metastatic breast cancer at Olivia Newton-John Cancer Research Institute and on metastatic breast cancer at Hawkins Laboratory Biochemistry and Genetics.

The Midkine antibody program currently works on three indications: metastatic breast cancer, metastatic lung cancer and now as of this morning's RNS osteosarcoma.

Breast cancer drug market

Breast cancer is the most frequently diagnosed life-threatening cancer in women with 2.3 million new diagnoses per year and the second leading cause of cancer death among women worldwide with approximately 685,000 deaths per year, according to the World Health Organization in 2021. While the overall survival rate is 91%, metastatic breast cancer survival rates are circa 30% and metastasis constitute the primary cause of death for >90% of breast cancer deaths.

The global metastatic breast cancer treatment market (including chemotherapy and radiation therapy) was US$17bn in 2021 and is expected to expand at a CAGR of 10.4% to US$42bn by 2030 according to Strategic Market Research.

Lung cancer drug market

Lung cancer is the second most common cancer worldwide. It is the most common cancer in men and the second most common cancer in women, according to World

Cancer Research Fund International. There were more than 2.2 million new cases of lung cancer in 2020 worldwide.

In the U.S., 56% of lung cancer patients are diagnosed when the cancer has already metastasised, according to the National Cancer Institute.

The global lung cancer therapeutics market was US$25bn in 2021 and is expected to reach US$54bn by 2029, registering a CAGR of 10.4% for 2022-2029, according to Data Bridge Market Research.

Osteosarcoma drug market

Osteosarcoma is a primary malignant bone tumour with a worldwide incidence of 3.4 per million people per year. It is usually found in appendicular skeleton, such as the distal femur (43%), proximal tibia (23%), or humerus (10%), but may also arise axially. Although most common in younger patients, there is an increasing prevalence among elderly patients, according to the paper published in February 2023 by Isaac G. Freedman, MD, al et. on Journal of the American Academy of Orthopaedic Surgeons Global Research & Reviews.

The survival rate for metastatic osteosarcoma has not improved for several decades. Over two thirds of metastatic osteosarcoma patients, many of whom are children or adolescents, fail to exhibit durable responses and succumb to their disease, according to the paper published in April 2022 by Michael A. Harris and Christine J. Hawkins on International Journal of Molecular Sciences. “A dramatic improvement in outcomes for the majority of metastatic osteosarcoma patients will probably require targeting of a novel process or molecule, distinct from those engaged by agents used in clinical trials to date”.

The global osteosarcoma drug market is forecasted to grow from US$1.2bn in 2022 to US$1.8bn by 2030 at a CAGR of 5.5%, according to Data Bridge Market Research.

Conclusion

In summary, Roquefort has shown evidence of pre-clinical success in targeting both highly prevalent and hard to treat cancers, as well as targeting orphan drug accelerated commercialisation pathways. To us it appears that the Company is highly commercial in its approach to progress of its platforms and programs.

Financial Statements

Income Statement (£) Y/E December	2021	2022	Notes
Revenue	719	-	
Other income	130	-	
Cost of goods	(10,069)	-	
Administrative expenses	(252,392)	(1,306,561)	Director and employee costs and other expenditures
Costs associated with the IPO	(182,053)	-	
Share based payments	(248,326)	(8,427)	
Costs associated with acquisition	(224,744)	-	
Research and development expenditure	(698)	(319,315)	
Amortisation of Intangible assets	-	-	
Operating loss	(917,433)	(1,634,303)	
Finance income	-	-	
Profit (loss) before tax	(917,433)	(1,634,303)	
Taxation	-	18,886	
Profit (loss) for the period	(917,433)	(1,615,417)	
Other comprehensive loss	624	(14,989)	
Total comprehensive income (loss)	(916,809)	(1,630,406)	
Earnings (loss) per share	(3.71)	(1.56)	
Weighted average number of shares	24,701,793	103,479,476	
Balance Sheet (£) Y/E December	**2021**	**2022**	
Intangible assets	1,481,530	5,343,505	Including £5,061,594 in-progress R&D
TOTAL NON-CURRENT ASSETS	1,481,530	5,343,505	Including goodwill of £281,911
Trade and other receivables	2,178,783	101,738	2021 receivable due to shares issued to acquire Lyramid
Cash and cash equivalents	899,721	2,322,974	
TOTAL CURRENT ASSETS	3,078,504	2,424,712	
TOTAL ASSETS	4,560,034	7,768,217	
Deferred tax liabilities	281,911	281,911	
TOTAL NON-CURRENT LIABILITIES	281,911	281,911	
Trade and other payables	195,517	279,670	
TOTAL CURRENT LIABILITIES	195,517	279,670	
TOTAL LIABILITIES	477,428	561,581	
Share capital	719,000	1,291,500	
Share premium	3,460,595	4,403,094	£3.75m equity consideration for acquisition of Oncogeni
Share based payments reserve	366,708	375,135	
Merger relief reserve	450,000	3,700,000	Including £3,250,000 due to acquisition of Oncogeni
Retained deficit	(914,321)	(2,548,728)	
Currency translation reserve	624	(14,365)	
TOTAL EQUITY	4,082,606	7,206,636	
TOTAL LIABILITIES AND EQUITY	4,560,034	7,768,217	

Source: Company Data

Cash Flow Statement (£) Y/E December	**2021**	**2022**	
Profit (loss) before tax	(996,068)	(1,634,303)	
Adjustment for:			
Foreign exchange	765	(9,918)	
Non-cash adjustment	(2,602)	-	
Share based payment	366,708	8,427	
Taxation	-	18,886	
Changes in working capital:			
Change in trade and other receivables	(24,434)	(20,318)	
Change in trade and other payables	129,525	59,750	
Change in inventory	9,273	-	
CASHFLOWS FROM OPERATING ACTIVITIES	(516,833)	(1,577,476)	
Acquisition of subsidiary, net of cash acquired	(606,226)	(103,478)	-
CASHFLOWS FROM INVESTING ACTIVITIES	(606,226)	(103,478)	-
Proceeds from issue of ordinary shares	2,182,798	3,121,202	£2m received in Jan 2022 +£1m in Sep 2022
Share issuance costs	(159,405)	(18,990)	
CASHFLOWS FROM FINANCING ACTIVITIES	2,023,393	3,102,212	
Net change in cash & cash equivalents	900,335	1,421,258	
FX translation difference	(614)	1,995	
Cash at the beginning of the period	-	899,721	
Cash at the end of the period	899,721	2,322,974	

Source: Company Data

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