hardman&co

Pharmaceuticals & Biotechnology

Source: Eikon Thomson Reuters

Market data	
EPIC/TKR	REDX
Price (p)	18.0
12m High (p)	48.4
12m Low (p)	17.5
Shares (m)	126.5
Mkt Cap (£m)	22.8
EV (£m)	9.2
Free Float*	77%
Market	AIM

**As defined by AIM Rule 26*

Description

Redx is focused on the discovery and development of proprietary, small molecule therapeutics to address areas of high unmet medical need, in cancer and fibrosis. The aim is to develop putative drugs through early trials and then to partner them for late stage development and commercialisation.

Company information	
Exec.Chairman	Iain Ross
CEO	-
CFO	Dominic Jackson
	+44 1625 469 900
	www.redxpharma.com

Key shareholders	
Directors	0.0%
Seneca Partners	12.5%
Jon Moulton	10.8%
AXA	9.8%
Lanstead Capital	9.5%
Aviva	8.4%

Diary	
6 Nov	Return to market
1Q'18	RXC004 Phase I trial

Analysts	
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Redx Pharma

Streamlined and clean

Redx has emerged from administration with a refocused R&D pipeline and in a very clean financial state with £13.6m net cash in the bank. The group's strategy has been validated by the successful disposal of its pre-clinical programme BTK for $40m. The new Board & Management team will focus resources on the early clinical development of its next two lead candidates, in oncology and fibrotic disease, which are expected to start Phase I trials in 2018 and 2019, respectively. There was an inevitable knee-jerk reaction when the shares were re-quoted but consideration should be given to the potential value within the focused pipeline.

- **Strategy:** The discovery and early clinical development of small molecule therapeutics in the fields of oncology and fibrotic disease. Redx is focused on taking assets through proof-of-concept clinical trials and then partnering them to the drug major(s) for late-stage development and commercialisation.

- **Pipeline:** Redx's new business plan is based on more streamlined R&D activity with two development and five discovery programmes. The porcupine inhibitor, RXC004, with potential in cancer, will enter first-in-man trials 1Q'18. This should be followed by Phase I trials with REDX8397 in fibrotic disease in 2019.

- **Financials:** Following disposal of the BTK inhibitor programme, Redx has been returned to the market with a clean bill of health – no loans, minimal creditors and £13.6m cash in the bank. The average monthly cash burn will be a more manageable at £630k-650k, excluding outsourced costs for the clinical work.

- **Risks:** Redx has been through a difficult period, but is in a much better shape on coming out of administration. While all early stage pharma/biotech companies carry substantial risks, the strategy of Redx has been validated by the recent disposal of the BTK programme for $40m.

- **Investment summary:** Redx had already started the process of refining its strategy, but recent events simply accelerated this evolutionary process. The revised business plan focuses cash resources on early clinical development of its drug leads in oncology and fibrotic disease. Commencement of clinical trials will be important milestones and represent the next valuation inflection points.

Financial summary and valuation

Year end Sept (£000)	2014	2015	2016	2017E	2018E	2019E
Milestones/royalties	0	0	0	0	0	0
Other income	6,157	2,648	2,380	650	1,000	1,000
R&D investment	-8,342	-9,463	-14,315	-13,000	-8,715	-11,079
SG&A (corp. cost)	-1,815	-2,008	-2,212	-5,150	-3,150	-3,276
Underlying EBIT	-4,000	-8,823	-14,147	-17,500	-10,865	-13,355
Underlying PBT	-4,249	-9,112	-14,606	-21,671	-10,837	-13,329
Statutory PBT	-4,263	-8,825	-15,407	1,709	-10,860	-13,372
R&D tax credit	910	650	637	520	523	665
Underlying EPS (p)	-7.5	-14.6	-17.8	-18.7	-8.2	-8.8
Statutory EPS (p)	-7.6	-14.1	-19.8	2.0	-8.2	-8.9
Net (debt)/cash	892	7,436	3,758	23,800	4,241	1,740
Capital increase	4,383	13,447	9,296	11,170	0	10,000

Source: Hardman & Co Life Sciences Research

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Executive summary

Background

Redx Pharma was established in late 2010 with the strategic intent of developing a broad portfolio of high value "best-in-class" or "first-in-class" pre-clinical small molecule drug candidates, targeting well characterised and validated targets, that were scientifically and commercially relevant to both big and emerging pharma. This strategy worked well, and by 2017 the company had built a series of assets, with its two most advanced programmes being prepared for first-in-man trials in 2018.

£56m invested in R&D to date

Over the last seven years, Redx has invested ca.£56m in R&D to build a significant portfolio of assets via its world-class chemistry capabilities. Funding has taken three forms: the vast majority has come from equity issues through venture capital, IPO (March 2015) and subsequent share issues (April 2016 and February 2017); some grant funding; and with a modest amount via regional loans, notably a conditional £2.0m loan from Liverpool City Council (LCC) in 2012.

'Going concern'

After the company raised new funds in February 2017, LCC sought repayment of its outstanding loan together with accrued interest (ca.£1.5m). Management continued to maintain a dialogue with LCC to agree terms to defer repayment of the loan and made offers in respect of part payment of accrued interest. Meanwhile, management also sought to restructure and refinance the loan with third parties. However, LCC issued a Default Notice and called in Administrators on 24th May, necessitating the suspension of trading in the shares.

Whilst in administration, the Board and management team have worked closely and diligently with the joint administrators over the five month period to ensure that the company could be returned to the market as a leaner, fitter organisation with sufficient working capital to operate as a 'going concern' and achieve significant scientific and commercial milestones.

Strategy validated by $40m disposal to Loxo

On entering the organisation, the joint administrators realised very quickly that Redx had created a portfolio of valuable assets which could make the company balance sheet solvent. This was proven to be the case when, in July 2017, they successfully disposed of the BTK inhibitor programme (all associated assets and IP) to Loxo Oncology Inc (NASDAQ: LOXO) for $40m (£30.2m) cash. This emphasised that the strategy employed by Redx has the potential to realise considerable value and returns for shareholders in the medium and longer term.

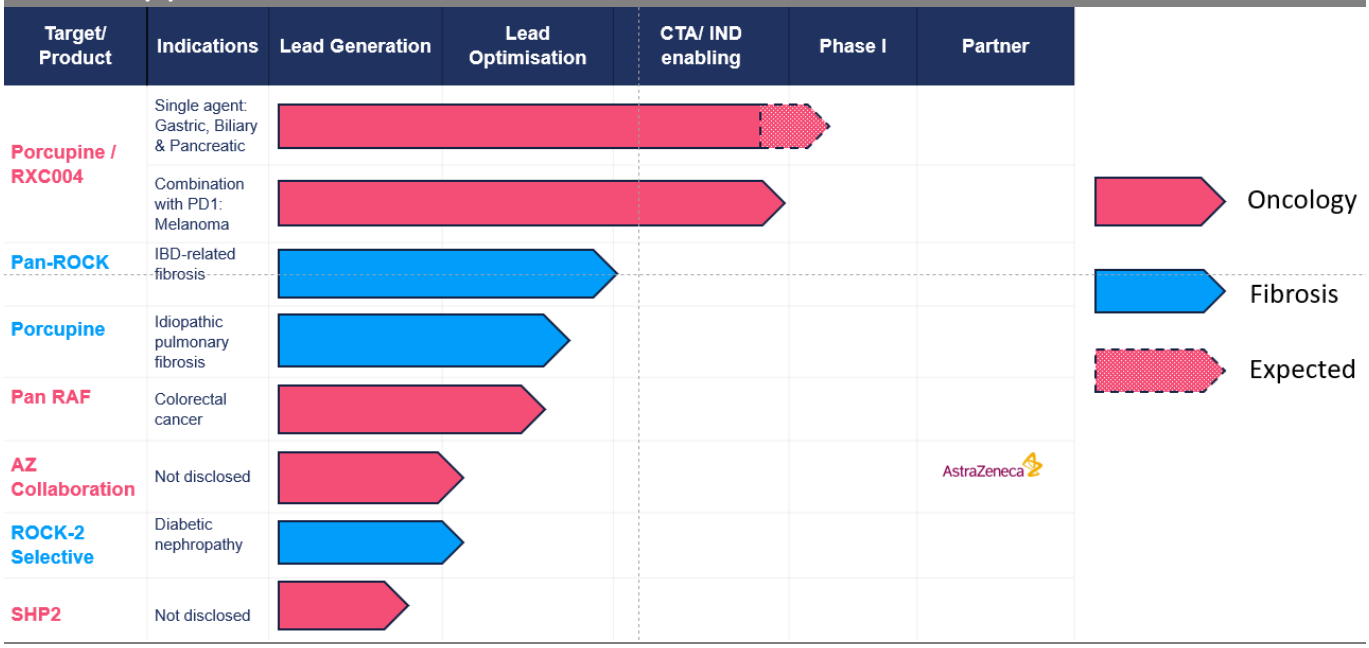
Redx has returned largely intact with a clean balance sheet

Having settled with most of its creditors, Redx has been left with net cash of £13.6m to invest in its refocused R&D pipeline, allowing it to come out of administration and have the suspension on the shares lifted. Final approval from the High Court was received on 1st November and trading in the shares recommenced on 6th November. There was an inevitable knee-jerk reaction by the market when the shares returned from suspension, which has stabilised. When it has had time for reflection, the market should give consideration to Redx re-emerging as a leaner organisation with two drug candidates nearing the clinic, and with the value of such assets highlighted by the disposal to Loxo.

Streamlined R&D

The new Board & Management team have drawn up a new business plan with a 12 month working capital requirement which has been signed off by the joint administrators. Even though the company still has most of its original assets, less the BTK programme, but with the recent addition of the Pan-ROCK programme, it has been adopting a more streamlined approach whilst in administration, with a vastly reduced workforce (38 vs 199). Resources are being concentrated on R&D activities in two core areas, oncology and fibrotic disease, both of which have advanced pre-clinical assets due to start first-in-man trials in 2018/19.

Refocused pipeline



Source: Redx Pharma

Oncology pipeline

In the updated pipeline, the most advanced product will be RXC004, a porcupine inhibitor with potential, either alone or in combination, in several types of cancer. An application to commence clinical trials has already been approved by the MHRA and the first-in-man Phase I/IIa trials are set to commence in 1Q 2018.

Fibrotic disease pipeline

The second area of focus is the large spectrum of fibrotic conditions with high unmet medical needs. In the first quarter of 2017, Redx gained access to this field through acquisition of the locally acting pan-Rho kinase (pan-ROCK) inhibitor AMA0825 (now re-named REDX8087) from Amakem NV. ROCK is a promising anti-fibrotic target and AMA0825 was acquired when it had reached late-stage lead optimisation. Redx will be targeting primarily the population of patients affected by inflammatory bowel disease (IBD) that go on to develop bowel wall fibrosis. The aim is to complete the lead optimisation phase and start the pre-clinical development work during 1H 2018. Trials will only be performed with the preferred enantiomer which needs to be custom synthesized and will be known as REDX8397.

Non-core assets

Redx does have other assets in the portfolio that are no longer considered core, which will be sold, partnered or shelved, whichever is in the best interests of shareholders. Key amongst them is the Gram-negative anti-infective programme. This programme is expected to be licensed-out for further development.

Management

Inevitably there have been changes in the Board & management team. Iain Ross has assumed the role of Executive Chairman from November 2017 and will lead a refreshed team: the Board being strengthened by the appointments of Dominic Jackson (CFO) and Peter Presland (NED) and a management team comprising Nick Adams as Chief Business Officer, Richard Armer as Chief Scientific Officer and Matilda Bingham as Head of Research & Operations.

New Redx team

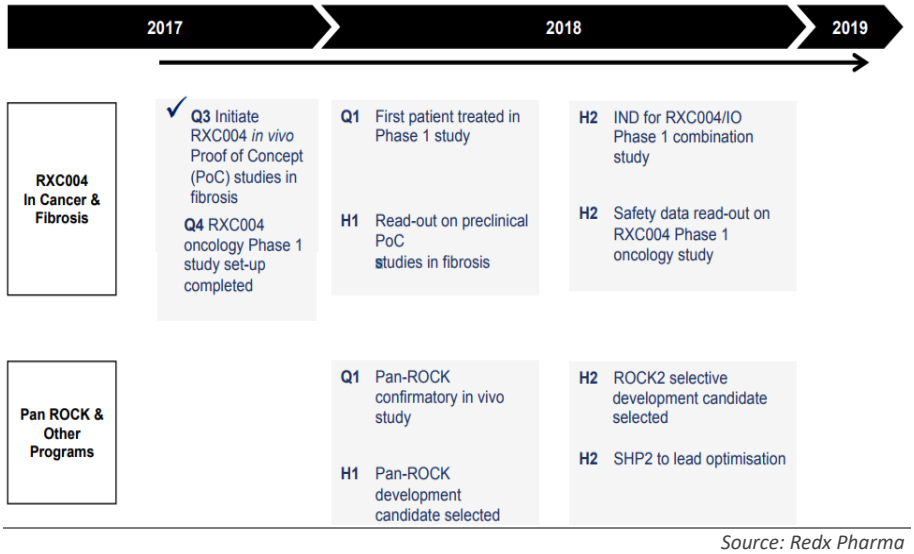
Position	Name
Board of Directors	
Executive Chairman	Iain Ross
Chief Executive Officer	To be appointed
Chief Financial Officer	Dominic Jackson
Non-executive director	Dr Bernhard Kirschbaum
Non-executive director	Peter Presland
Senior Management	
Chief Scientific Officer	Dr Richard Armer
Chief Business Officer	Nicholas Adams
Head of Research and Operations	Dr Matilda Bingham

Source: Company reports

Working capital

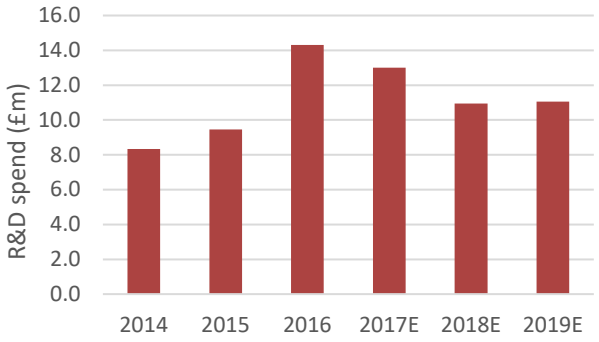
The joint administrators have signed off on a business plan that has an average cash burn of £630k-650k per month excluding external R&D work (e.g. CRO). With net cash in excess of £13.6m (31st Oct), Redx has sufficient working capital to achieve significant scientific and commercial milestones and take the company through to the first quarter of calendar 2019.

Expected newsflow



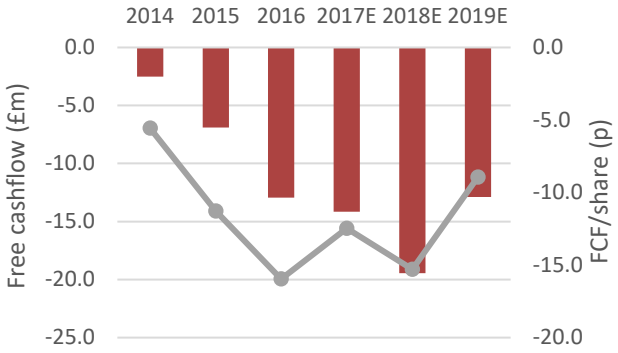
Source: Redx Pharma

Research & Development



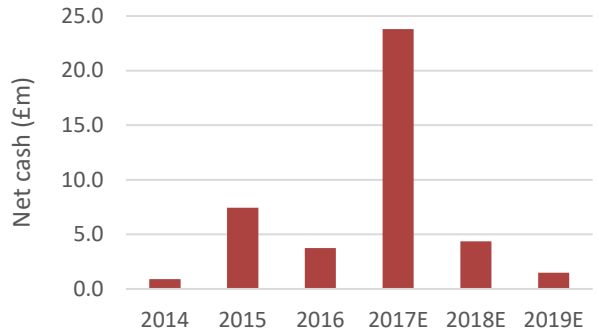
- To date, Redx has invested ca.£56m in R&D to generate the current R&D pipeline plus the disposed asset
- Future R&D investment will be much more focused, on oncology and fibrotic diseases
- The group will retain R&D scientists to support the more streamline R&D activities

Cashflow



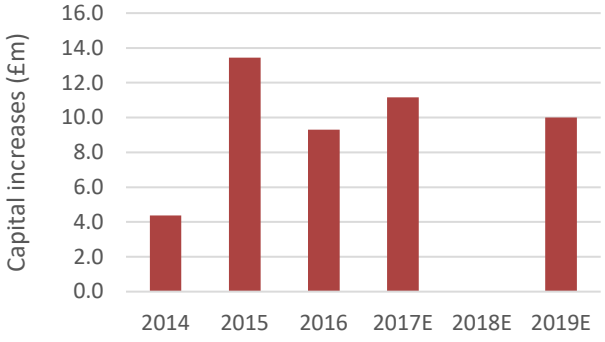
- Following the lifting of the share suspension, the average monthly burn is forecast at £630-650k excluding external R&D needs
- External costs of the Phase I trial for RXC004 are expected to be ca.£3.9m
- The subsequent expansion arm in gastric and biliary cancer in 2019 is forecast to be around £3m
- External costs of Phase I trial for the pan-ROCK programme are expected to be a similar order of magnitude

Net cash



- Redx has been returned has been returned to the market with cash of £13.6m and no loans and liabilities
- Forecasts suggest that this will be a sufficient runway through to 1Q 2019
- Our forecasts assume that at least £10m (net) more capital in the second half of calendar 2018 – this could be in the form of equity, an up-front payment in a licensing deal, or a straight disposal of an asset

Capital increases



- Funded privately up to March 2015
- IPO proceeds of £15m gross (£13.4m net) in March 2015
- £10m (gross) to fund R&D and working capital in 2016
- £12.4m (gross), with £7.5m net, raised in Feb 2017, and further potential £3.6m over the following months
- In the absence of any funds being generated from deals on non-core assets or partnering of the pipeline, our forecasts suggests more capital will be needed by the end of 2018

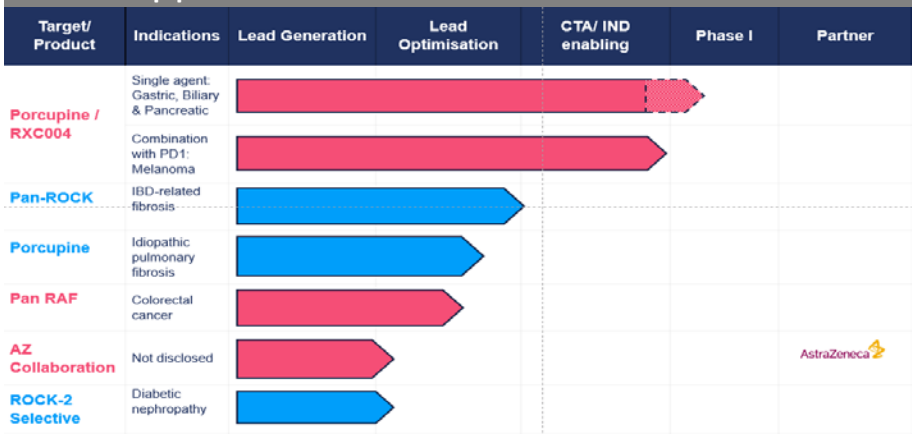
Source: Company data; Hardman & Co Life Sciences Research

Streamlined R&D

The new pipeline focuses on oncology and fibrotic diseases

Redx has emerged from Administration with its R&D pipeline largely intact. The joint administrators, together with Redx, divested successfully one of its more advanced pre-clinical drug candidates, RXC005 (BTK inhibitor for chronic lymphocytic leukaemia) which was about to enter toxicology testing, to Loxo Oncology for $40m (£30.2m). Also, in February 2017, Redx acquired the pan ROCK programme from Amakem, which was at a similar stage of development. However, events of recent months have prompted the new management team to concentrate resources going forward and its R&D activities has prioritised two core areas, oncology (four projects) and fibrotic diseases (three projects) at different stages of development.

Re-focused pipeline



Source: Redx Pharma

Strategy

The price paid by Loxo to access the assets and IP for the BTK programme has validated Redx's strategy

The overall R&D strategy has changed subtly: to develop small molecule therapeutics through Phase I and up to Phase II proof-of-concept trials and then to out-license these assets for late-stage development and commercialisation. This will maximize shareholder value per product. Redx is also open for partnering programmes at an earlier stage, if considered appropriate. The price of $40m (£30.2m) paid by Loxo for BTK is clear evidence that this strategy can be successful. If Redx can develop an asset even further along the pipeline to include clinical data, then even greater fees, milestones and royalties are likely to be achieved.

The new team also intends to continue supporting the oncology and fibrotic clinical programmes with an appropriate level of pre-clinical effort that is expected to generate the next set of clinical leads. The group has managed to retain a core team of 38 people (down from a peak of 199), with 30 people dedicated to research of development.

Non-core assets

Redx has an interesting Gram-negative anti-infective programme within its R&D portfolio. However, with the new strategy of concentrating on developing programmes in oncology and fibrotic diseases, this asset is likely to be licensed out for further development.

Oncology pipeline

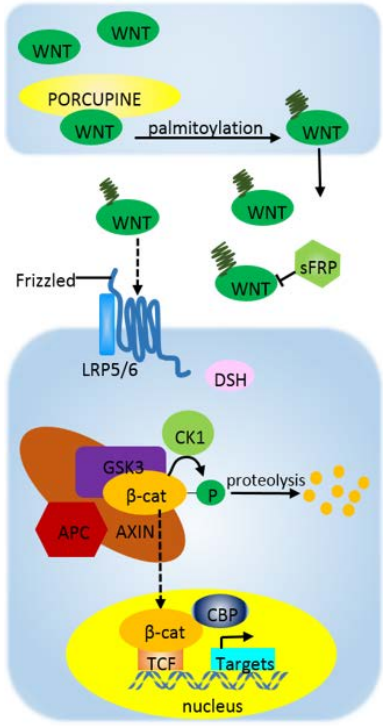
Porcupine inhibitor RXC004

The most advanced product in the streamlined portfolio is RXC004, a porcupine (PORCN) inhibitor with potential, either alone or in combination, in several types of cancer. An application to commence clinical trials has already been approved by the MHRA first-in-man Phase I/IIa trials are set to commence in 1Q 2018.

Scientific rational

The porcupine enzyme is a key protein that is required for the function of the Wingless-type (Wnt) pathway, an embryonic signalling pathway that is implicated in cell proliferation, survival, migration, cell death and polarity, as well as the maintenance of cancer stem cells (CSC) in many cancer types, that results in recurrence and the emergence of cancer resistance.[1] The protein is also believed to have a potential role in the field of immuno-oncology when it is combined with checkpoint inhibitors.

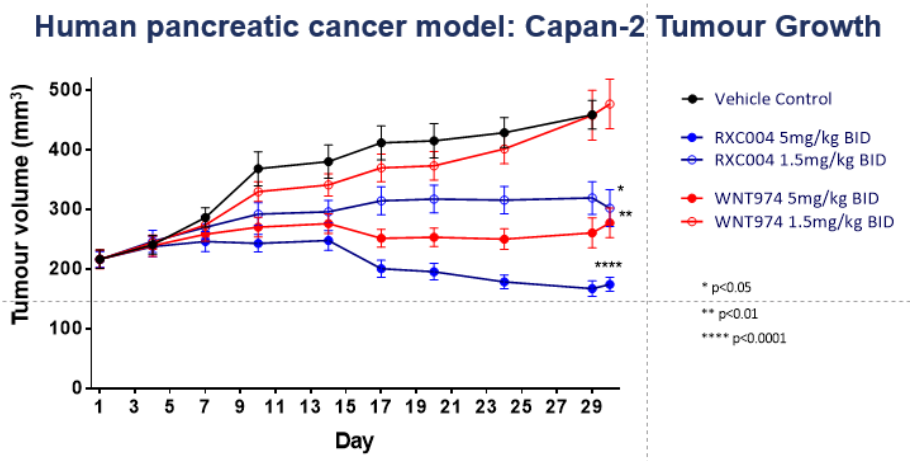
Wnt pathway in oncology



Source: Redx Pharma

- **Targeted therapy:** Previous pre-clinical experiments demonstrated that RXC004 could inhibit tumour growth in a variety of cancer models, and appeared to have a suitable safety profile. Redx hypothesised that RXC004, as a single agent, had potent activity in hard to treat cancers – e.g. gastric, biliary, pancreatic. Importantly, RXC004 was also shown to be efficacious at inhibiting tumour growth at lower doses to WNT974 (Novartis' lead compound) in a pancreatic tumour model.

RXC004 single agent efficacy

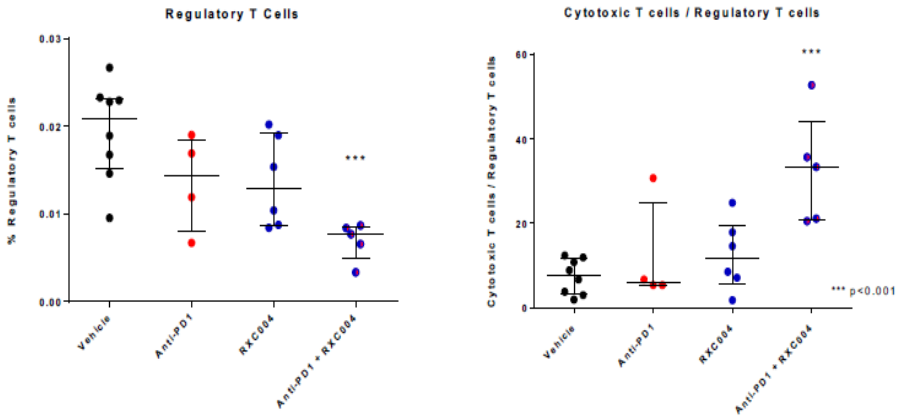


Source: Redx Pharma

- **Immuno-oncology:** In addition to its anti-tumour effect, RXC004 has provided evidence of an immune system stimulation. Concomitant administration with a PD-1 checkpoint inhibitor has a beneficial immune system effect with the down regulation of regulatory T-cells which are responsible for fooling the immune system and hiding tumour cells, and up-regulation of the ratio of cytotoxic T-cells to regulatory T-cells improving the immune response against foreign antigens. By using combination therapy, the aim is to potentiate the effect of a PD-1 checkpoint inhibitor and increase its response rate, as demonstrated in the following in vivo syngeneic CT26 cancer model.

[1] Can we safely target the WNT pathway? Michael Kahn, *Nature Rev. Drug Discovery* **2014**, *13*, 513-532.

RXC004 in combination with a PD-1 checkpoint inhibitor



Source: Redx Pharma

Dual anti-cancerous and immune response stimulating effect of RXC004

The dual anti-cancer and immune response effects provide RXC004 with an attractive profile, targeting specifically the immunosuppressive microenvironment usually seen in tumours.

Phase I/IIa clinical trial

Clinical trials with RXC004 to commence in 1Q'18 in hard to treat cancers as a single agent followed by a combination arm with a PD-1 checkpoint inhibitor

Redx has received approval from the MHRA to commence a Phase I/IIa clinical trial with RXC004 in hard to treat cancers, which is expected to commence in 1Q 2018. This would represent a major milestone, being the first programme that Redx has advanced into the clinic since its creation in 2010. The trial will be led by The Christie NHS Foundation Trust in Manchester, and will comprise three parts:

- Assessing safety and tolerability of RXC004 in advanced cancer patients with solid tumours, as a single agent, with data available late in 2018
- Expansion arms into gastric, biliary and pancreatic cancers, with first data available early in 2020
- Safety and tolerability study in combination with a PD-1 checkpoint inhibitor in melanoma, followed by combination efficacy studies

Competition

The porcupine protein has generated substantial external interest given the better understanding of the Wnt pathway. Novartis is probably in the first position with its lead compound WNT974 that has going Phase I/II trials in a range of cancers. Initial clinical data on WNT974 has been published (pharmacokinetic, safety and tolerability), but not much on the efficacy disclosed so far. Redx believes RXC004 could potentially result in a best-in-class drug, given its improved potency, animal efficacy and pharmacokinetic (PK) profile.

Early discovery oncology pipeline

Programme	Description
Pan-Raf inhibitor	Small molecule in lead optimisation with application in colorectal cancer
AZ collaboration	Undisclosed target in oncology – headlines expected by 1H 2018
SHP-2	Small molecule allosteric inhibitor for hard-to-treat / resistant solid tumours

Source: Company reports

Fibrotic disease pipeline

Focus areas

Idiopathic Pulmonary Fibrosis (IPF)

Inflammatory Bowel Disease (IBD)

Diabetic nephropathy

NASH/ Liver fibrosis

Source: Redx Pharma

Fibrotic conditions are poorly covered and represent a significant unmet medical need.

The second focus of Redx is to target the large spectrum of fibrotic conditions with high unmet medical need. Redx acquired the locally acting pan-Rho kinase (pan-ROCK) inhibitor AMA0825 (now re-named REDX8087) from Amakem NV in March 2017. ROCK is a promising anti-fibrotic target and AMA0825 was acquired when it had reached late-stage lead optimisation.

Scientific rational

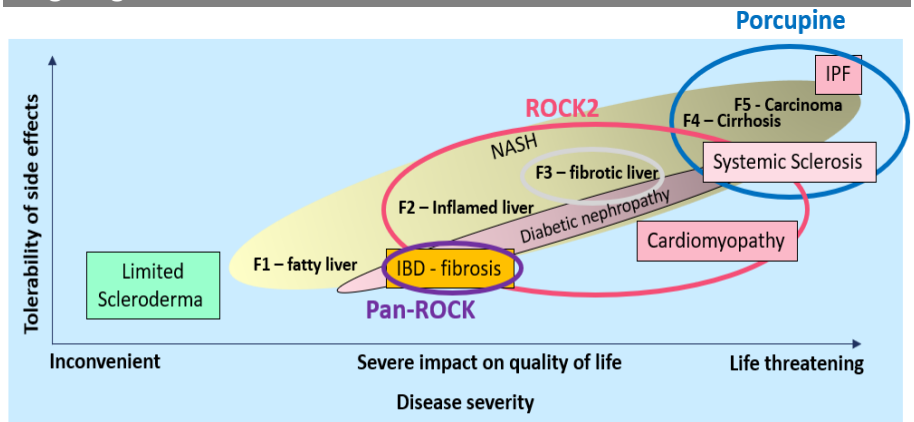
Fibrosis is the formation of excess fibrous connective tissue in an organ or tissue that arises in a reparative or reactive process. The condition could range from being benign to a pathological state where it could lead to death when the excess of fibrous tissue changes the architecture, and then the function of an organ or tissue.

Ultimately, fibrosis results in an amplified wound healing response bringing scarring and thickening of the affected organ or tissue. To date the condition is poorly covered with only two therapies approved by the FDA in 2014 to slow down the progress of the idiopathic pulmonary fibrosis (IPF) condition:

- **Ofev** (nintedanib, Boehringer Ingelheim): kinase inhibitor targeting the growth factor receptors VEGFR, FGFR and PDGFR. It is believed that the high cost of the drug (£39,300/year) was found to be not cost effective for IPF in the UK
- **Esbriet** (pirfenidone, Roche, approved in 2011 by the EMA): The mechanism of action is complex, with Esbriet having an anti-inflammatory action by decreasing cytokines and interleukins plasma level and also collagen production. Esbriet may also be effective for chronic liver fibrosis

Neither treatment is a cure but both products have shown to slow the progression of the disease. There is no clear explanation how both drugs work against IPF but they seem to inhibit pathways that help to prevent scarring. For the majority of patients, there is no standard treatment for patients affected by fibrosis. Palliative and anti-inflammatory drugs are the current mainstream treatments.

Targeting fibrotic diseases



Pan-ROCK:	IBD fibrosis, F3 liver fibrosis
Porcupine:	IPF, systemic sclerosis, liver cirrhosis and carcinoma
ROCK2:	F2/F3 liver NASH, IPF, early onset systemic sclerosis

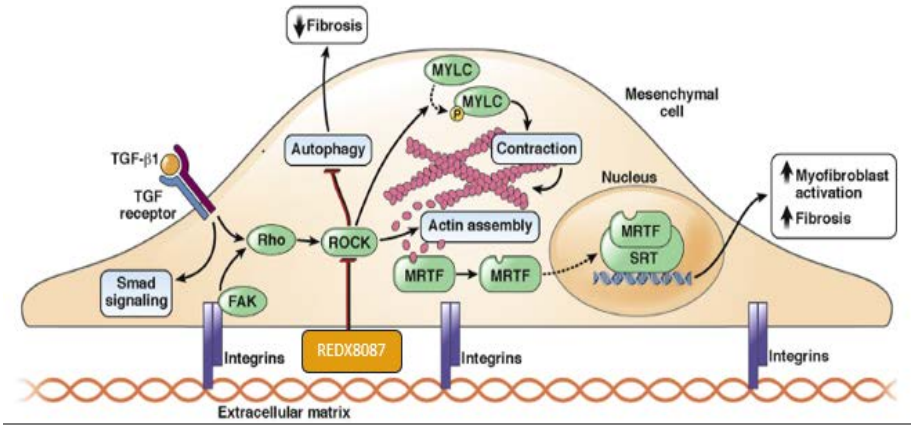
Source: Redx Pharma

Pan-ROCK inhibitors

With the 'soft' pan-ROCK inhibitors, Redx targets primarily the population of patients affected by inflammatory bowel disease (IBD) that will develop bowel wall fibrosis, a complication that occurs in 30-40% of IBD suffering patients.[2] These patients will eventually require surgery to remove diseased sections of the intestine caused by fibrotic stricture. There is currently no pharmaceutical treatment for IBD related fibrosis and Redx believes it can be the first to reach the clinic in this indication. Scientific evidence has shown ROCK to be involved in fibroblast activation, and inhibition should prevent and reverse the fibrotic condition[3].

Systemic exposure of Redx's pan-ROCK inhibitor is limited through rapid degradation by specific blood esterases, and allows selective targeting of the gut and potentially the liver. This avoids the known hypotensive side effect of systemic dual ROCK1/2 inhibition. Redx aims to bring its chemical lead into the clinic by the end of 2019.

Targeting fibrotic diseases for immunology projects



Source: Holvoet et al; Rieder et al

The locally acting ROCK1/2 inhibitors, including REDX8087, have already demonstrated efficacy in a range of animal IBD fibrosis models. With the dual mechanism of action, Redx's molecule has the potential to be first-in-class.

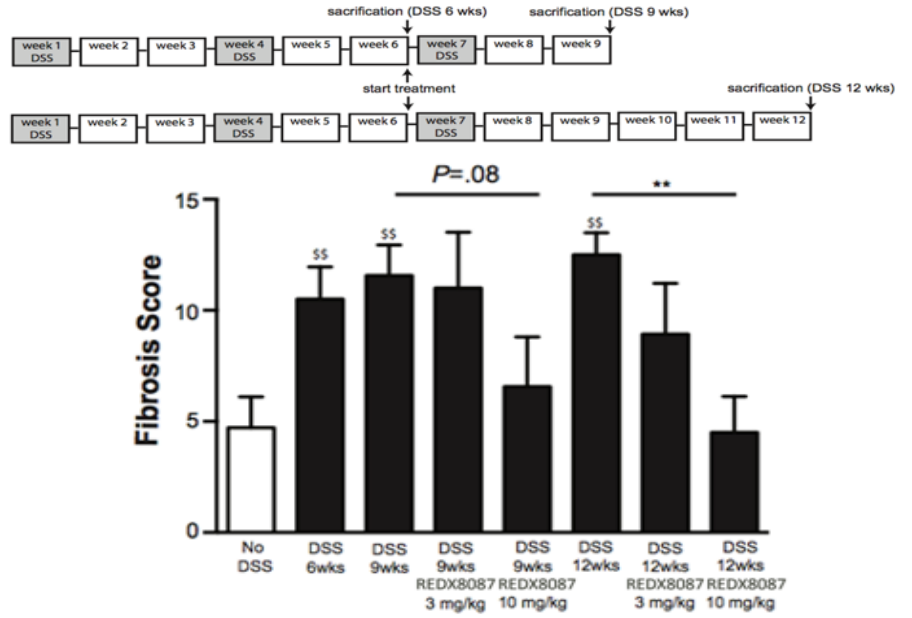
In a mouse DSS IBD fibrosis model, the oral dosing of REDX8087 demonstrated a reduction of the fibrotic score in a dose dependent manner, reducing the fibrotic score to minimal after 6 weeks of treatment. With the pan-ROCK inhibitor, Redx has the opportunity to develop a product that has the potential to not only stop, but also to reverse eventually the formation of fibrotic tissues.

Redx aims to nominate a development candidate during 1H 2018 followed by pre-clinical development and entry into the clinic in 2H 2019.

[2] Florian Rieder, Claudio Fiocchi Intestinal fibrosis in inflammatory bowel disease – Current knowledge and future perspective *J. Crohns Colitis* **2008**, 279-290.

[3] Holvoet et al treatment of Intestinal fibrosis in experimental inflammatory bowel disease by the pleiotropic action of a local Rho Kinase inhibitor Gastroenterology 2017, 1054-1067.

Targeting fibrotic diseases for immunology projects



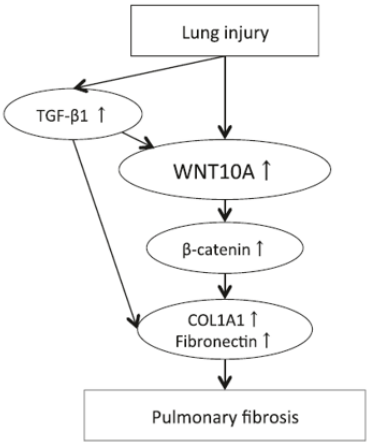
Source: Redx Pharma

Porcupine inhibitors

Modulators of the Wnt pathway may play a crucial role in fibrotic diseases

There is scientific evidence demonstrating the importance of the Wnt pathway in the development of fibrotic conditions through its role in increasing the level of several pro-fibrotic proteins. Influence of Wnt activation of β-catenin signalling in fibroblasts is believed to trigger the fibrotic pathology in various organs such as lung, liver and kidney. There is currently no cure for idiopathic pulmonary fibrosis (IPF) and the standard of care is just to relieve the symptoms as much as possible and slow down the scarring of the lungs.

Lung fibrosis



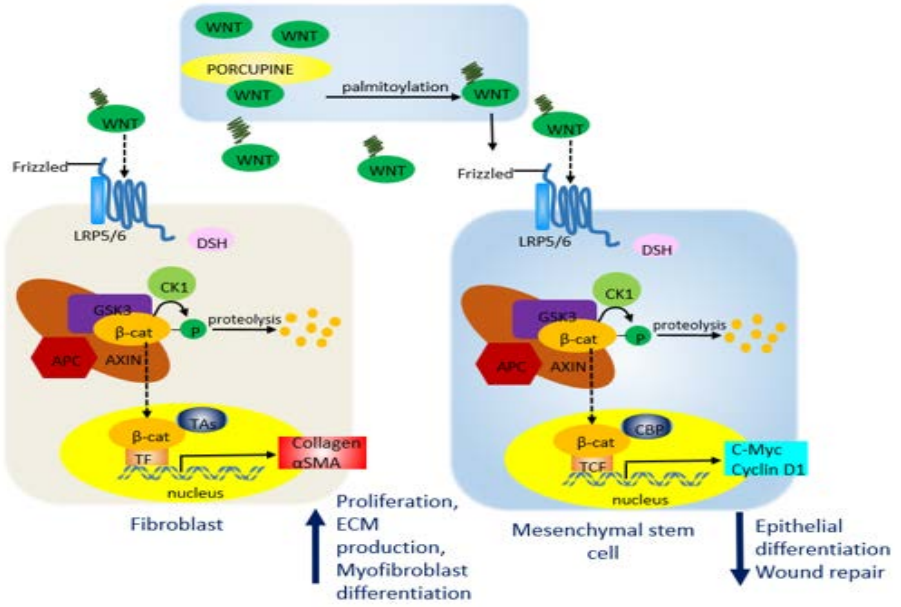
Source: Oda et al, 2016

- **In the lung**, the Wnt protein acts both in an autocrine (acts across one cell type) and paracrine (acts between cell types) fashion on epithelial and mesenchymal (connective tissue) cells. When activated by lung injury, the Wnt pathway increases the expression of Wnt10a protein causing lung epithelial cell proliferation, fibroblast activation and collagen synthesis, leading to pulmonary fibrosis[4]
- **In adult kidneys,** Wnt/β-catenin signalling is relatively silent and is re-activated following renal injury. Increasing evidence suggests that sustained activation of Wnt/β-catenin is associated with the development and progression of renal fibrotic lesions.[5] On the other hand, inhibition of Wnt/c-catenin signalling ameliorates kidney injury and mitigates renal fibrotic lesions in various models of chronic kidney disease. This suggests that targeting this signalling via a porcupine inhibitor could be a plausible strategy for therapeutic kidney fibrosis.

4 Oda et al Profibrotic role of WNT10A via TGF-b signalling in idiopathic pulmonary fibrosis *respiratory Research*, **2016**, https://doi.org/10.1186/s12931-016-0357-0

[5] RJ Tan, D Zhou, L Zhou, Y Liu Wnt/ β-catenin signalling and kidney fibrosis, 2014, Kidney International Suppl, 84-90.

Porcupine inhibitor: mechanism of action



Source: Redx Pharma

Given that RXC004 modulates the Wnt pathway, Redx also has the opportunity to target another large market with high unmet medical need, with a relatively modest investment – the planned Phase I/IIa oncology trial with RXC004 will provide human safety and tolerability data.

Redx is also progressing a back-up series porcupine inhibitor with REDX06109, which is chemically distinct to RXC004, that has demonstrated encouraging results in suppressing fibrosis in an established murine unilateral ureteral obstruction (UUO) model. Further experiments are planned in other animal models.

ROCK2 inhibitor

The ROCK2 programme is at the lead optimisation stage and Redx's focus is on its application in pro-fibrotic cell types that could potentially cover a large spectrum of diseases. The benefit of having a selective ROCK2 inhibitor is the fact that systemic anti-fibrotic effects can be achieved without the hypotensive side effect seen with dual ROCK1/2 inhibition. Potential indications would be Diabetic Nephropathy (DN), IPF, non-alcoholic steatohepatitis (NASH) and orphan fibrotic diseases such as scleroderma.

R&D newsflow

Expected newsflow*

Date	News
1Q 2018	RXC004 Phase I/IIa in advanced gastric, biliary and pancreatic cancers
1Q 2018	Pan-ROCK confirmatory *in vivo* pre-clinical study
1H 2018	Development candidate nomination for the Pan-ROCK inhibitor
1H 2018	Update AZ collaboration
2H 2018	IND submission for RXC004 Phase I combination study with a PD-1 inhibitor
2H 2019	First-in-man Pan-ROCK inhibitor

*Also see chart on Page 5

Source: Shareholder Circular and presentation; Hardman & Co Life Sciences Research

Detailed financials

Profit & Loss

The financial year is expected to remain year 30th September.

- **2017:** Several unusual costs will bias the numbers when reported, including redundancy costs for staff, Administrators costs, and the profit on disposal on the BTK inhibitor. Numbers for 2018 and beyond are on a 'clean' basis
- **SG&A:** On-going central administration and corporate overhead has been lowered, and is expected to rise in-line with inflation
- **R&D:** Comprised of two main items: the on-going staff and consumable costs related to the reduced number of R&D staff; plus the external (e.g. CRO) R&D costs of running clinical trials. Two Phase I/IIa trials are expected to begin in each of the next two financial years, with external costs of about £3-4m per annum
- **Interest:** Following repayment of all loans, no interest charges will be incurred. The 2017 net financial line will include the write-down of the Lanstead derivative
- **Tax credits:** Remains conservative, and in the absence of other local grants or rebates, more of the R&D spend is likely be eligible for R&D tax credits in future

Profit & Loss account

Year end Sept (£000)	2014	2015	2016	2017E	2018E	2019E
Sales	0	0	0	0	0	0
SG&A	-1,815	-2,008	-2,212	-5,150	-3,150	-3,276
R&D	-8,342	-9,463	-14,315	-13,000	-8,715	-11,079
Depreciation	-252	-139	-262	-370	-370	-370
Licensing/Royalties	0	0	0	0	0	0
Other income	6,157	2,648	2,380	650	1,000	1,000
Underlying EBIT	**-4,000**	**-8,823**	**-14,147**	**-17,500**	**-10,865**	**-13,355**
Share based costs	-14	-608	-245	-3	-23	-43
Exceptional items	0	895	-556	-6,820	0	0
Statutory EBIT	-4,014	-8,536	-14,948	-24,323	-10,888	-13,398
Net interest	-249	-289	-279	-321	28	26
Net financials	-249	-289	-459	-4,171	28	26
Pre-tax profit	**-4,249**	**-9,112**	**-14,606**	**-21,671**	**-10,837**	**-13,329**
Extraordinary items	0	0	0	30,203	0	0
Reported pre-tax	-4,263	-8,825	-15,407	1,709	-10,860	-13,372
Reported taxation	910	650	-114	520	523	665
Underlying net income	**-3,339**	**-8,462**	**-13,969**	**-21,151**	**-10,314**	**-12,664**
Statutory net income	-3,353	-8,175	-15,521	2,229	-10,337	-12,707
Ordinary 0.15p shares (m)						
Period-end	47.3	65.0	93.6	126.5	126.5	159.8
Weighted average	44.3	58.0	78.4	113.0	126.5	143.1
Fully diluted	44.3	60.8	82.3	117.3	130.7	147.4
Underlying Basic EPS (p)	**-7.5**	**-14.6**	**-17.8**	**-18.7**	**-8.15**	**-8.85**
Statutory Basic EPS (p)	-7.6	-14.1	-19.8	2.0	-8.17	-8.88
U/l Fully-diluted EPS (p)	**-7.5**	**-13.9**	**-17.0**	**-18.0**	**-7.89**	**-8.59**
Stat. Fully-diluted EPS (p)	-7.6	-13.5	-18.9	1.9	-7.91	-8.62
DPS (p)	0.0	0.0	0.0	0.0	0.0	0.0

Source: Hardman & Co Life Sciences Research

Balance sheet

- **Net cash:** On exiting administration, all loans and the vast majority of creditors have been settled, leaving the company with working capital of £13.6m, which the Administrators have declared will be more than sufficient to cover Redx's needs for the next 12 months based on the revised business plan
- **2017:** The next set of results will be for the full year to end September. At this point in time the company is expected to be showing ca.£24m of cash in its balance sheet and zero debt. However, unsecured creditors (ca.£10m) will not have been paid at this point
- **2019**: Based on current projections, our forecasts assume that Redx will need to raise in the order of £10m (net) of new capital from a variety of potential sources to fund the R&D investment and for working capital purposes during 4Q calendar 2018, in readiness for the planned clinical programme works in 2019

Balance sheet

@ 30th Sept (£000)	2014	2015	2016	2017E	2018E	2019E
Shareholders' funds	1,820	7,700	1,720	15,119	4,782	2,075
Cumulated goodwill	0	0	0	0	0	0
Total equity	1,820	7,700	1,720	15,119	4,782	2,075
Share capital	7	650	936	1,265	1,265	1,598
Reserves	1,813	7,050	784	13,854	3,517	476
Capitalised R&D	15,383	21,210	30,099	36,049	36,624	38,177
Long-term loans	0	2,000	0	0	0	0
Short-term debt	2,000	0	2,000	0	0	0
less: Cash	2,892	9,436	5,758	23,800	4,241	1,740
Invested capital	**15,363**	**20,724**	**27,456**	**27,368**	**37,165**	**38,512**
Fixed assets	313	353	533	213	-57	-322
Intangible assets	309	309	309	426	426	426
Capitalised R&D	15,383	21,210	30,099	36,049	36,624	38,177
Inventories	0	0	0	0	0	0
Trade debtors	*0*	*0*	*0*	*0*	*0*	*0*
Other debtors	*2,597*	*1,407*	*1,553*	*0*	*0*	*0*
Tax credit/liability	*0*	*1,501*	*637*	*520*	*523*	*665*
Trade creditors	*-1,151*	*-1,601*	*-1,601*	*-3,812*	*-800*	*-840*
Other creditors	*-2,088*	*-2,455*	*-4,074*	*-4,332*	*-1,323*	*-1,505*
Debtors less creditors	-642	-1,148	-3,485	-9,320	172	231
Invested capital	**15,363**	**20,724**	**27,456**	**27,368**	**37,165**	**38,512**
Net cash/(debt)	**892**	**7,436**	**3,758**	**23,800**	**4,241**	**1,740**

Source: Hardman & Co Life Sciences Research

Cashflow

- **2017:** Cashflows for 2017 will be of an abnormal pattern. Administrators raised $40m (£30.2m) cash through the disposal of the BTK-inhibitor asset and used it to repay outstanding loans and accrued interest and settle with all creditors, creating the unusual working capital figure. The investment of £3.56m shown is to Lanstead Partners, which is not going to be recovered
- **2018:** The operational cash outflow due to working capital requirements in fiscal 2018 will be artificially high as it covers the month (October 2017) when the administrators paid the majority of unsecured creditors plus accrued interest
- **Cash burn:** We believe that the revised business plan is operating to an average cash burn of £630-650k per month on top of which will be the external investment in R&D
- **Capital requirement:** Our forecasts assume that management will need to raise ca.£10m (net) for R&D investment and working capital purposes early in fiscal 2019

Cashflow

Year end Sept (£000)	2014	2015	2016	2017E	2018E	2019E
Underlying EBIT	-4,000	-8,823	-14,147	-17,500	-10,865	-13,355
Depreciation	252	139	262	370	370	370
Amortisation	0	0	0	0	0	0
Inventories	*0*	*0*	*0*	*0*	*0*	*0*
Receivables	*985*	*1,194*	*-124*	*100*	*0*	*0*
Payables	*217*	*815*	*1,272*	*3,244*	*-9,512*	*40*
Change in working cap.	1,202	2,009	1,148	3,344	-9,512	40
Exceptionals/provisions	0	0	-556	-320	0	0
Disposals	-21	21	0	0	0	0
Other	0	0	0	0	0	0
Company op cashflow	**-2,567**	**-6,654**	**-13,293**	**-14,106**	**-20,007**	**-12,945**
Net interest	-249	16	36	5	28	26
Tax	351	97	750	0	520	523
Operational cashflow	**-2,465**	**-6,541**	**-12,507**	**-14,101**	-19,459	-12,396
Capital expenditure	-54	-362	-444	-50	-100	-105
Sale of fixed assets	0	0	2	0	0	0
Free cashflow	**-2,519**	**-6,903**	**-12,949**	**-14,151**	**-19,559**	**-12,501**
Dividends	0	0	0	0	0	0
Acquisitions	0	0	0	-120	0	0
Disposals	0	0	0	30,203	0	0
Other investments	0	0	0	-3,560	0	0
Cashflow after invests.	**-2,519**	**-6,903**	**-12,949**	**12,372**	**-19,559**	**-12,501**
Share repurchases	0	0	0	0	0	0
Share issues	4,383	13,447	9,296	11,170	0	10,000
Cash/(debt) acquired	0	0	-25	-3,500	0	0
Change in net debt	**1,864**	**6,544**	**-3,678**	**20,042**	**-19,559**	**-2,501**
Opening net cash	-972	892	7,436	3,758	23,800	4,241
Closing net cash	**892**	**7,436**	**3,758**	**23,800**	**4,241**	**1,740**
Hardman FCF/share (p)	-5.6	-11.3	-16.0	-12.5	-15.4	-8.7

Source: Hardman & Co Life Sciences Research

Valuation

The best approach to valuing biopharmaceutical companies is to prepare detailed discounted cashflow analyses of key products through to patent expiry and then to risk-adjust the NPV based upon industry standards for the probability of the product reaching the market. In this instance the assets are at too early a stage to do a DCF valuation without exhaustive analysis of the market opportunities, penetration rates and potential milestones and royalty payments. Equally the probabilities of successfully reaching the market for preclinical assets is typically less than 5%.

Redx's approach is to develop assets targeting markets of significant unmet clinical need, with $1bn+ sales potential, which will be attractive to big pharma and/or biotech companies. This approach has been validated by the willingness of Loxo to buy-out the assets and IP of the BTK inhibitor programme.

Comparative valuation – M&A

Redx's strategy is to develop its assets through proof-of-concept clinical trials and then to out-license them. The following table provides some indication of the value that big pharma and biotech is willing to place on novel clinical and pre-clinical assets in the field of oncology. The list is not exhaustive but investigates transactions where financial terms were disclosed. There are many more deals where financial terms were not disclosed. Our focus has been on a number of transactions where assets were in late-stage pre-clinical development or early-stage clinical development to better illustrate the value inflection points.

- The median up-front license deal value of pre-clinical compounds in the immuno-oncology and oncology space is $25m per target with milestones of up to $433m; this compares with $17m and $357m respectively up to end 2015
- The median up-front license deal value of Phase I clinical assets in oncology is $53m per target with milestones of up to $628m; this compares with $45m and $628m respectively up to end 2015
- 15 early clinical and 52 pre-clinical deals were included in our analysis

Selected Phase I oncology deals

Licensor	Licensee	Type	Date	Upfront ($m)	Milestones ($m)	Milestones
Incyte	MacroGenics	Lic.	Oct-17	150	750	Worldwide rights to PD-1 drug
Merck & Co	Rigontec	Acqn.	Sep-17	137	415	Company buy-out
Celgene	Beigene	Lic.	Jul-17	263	1,000	Worldwide ex-Asia rights to BGB-A317
Incyte	Calithera Bio.	Lic.	Jan-17	53	430	Global collab. & licensing for CB-1158
Five Prime Ther.	BMS	Lic.	Oct-16	350	1,390	Anti-CSF1R for oncology/non-oncology uses
Sierra Onc.	Sareum/CRT Pioneer Fund	Lic.	Sep-16	7	322	Sareum has rights over 27.5% of all payments by Sierra
Celgene	Juno	Lic.	Aug-16	50	1,000	CD19 programme ex-N.America and China
Novartis	Xencor	Lic.	Jun-16	150	2,410	Access to bi-specific antibodies: XmAb5871
CANbridge LS	Aveo Onc.	Lic.	Mar-16	1	132	World, excl North America, rights to AV-203
Alligator Bio.	Janssen	Lic.	Aug-15	U/D	700	$700m deal size including upfront payments, dev/reg & sales milestones, plus royalties
Newlink Gen.	Genentech	Lic.	Oct-15	150	1,000	>$1bn. US co-promote option
CureVac	B. Ingelheim	Lic.	Sep-14	45	556	€430m ($556m)
Adaptimmune	GSK	Lic.	Jun-14	U/D		No financial information disclosed
			Average	**104.6**	**755.3**	
			Median	**53.0**	**628.0**	

Source: Hardman & Co Life Sciences Research

Selected pre-clinical oncology deals

Licensor	Licensee	Type	Date	Upfront ($m)	Milestones ($m)	Milestones
Loxo Oncology	Redx Pharma	Acqn.	Jul-17	40	0	Assets and IP of BTK programme
Celgene	Dragonfly	Lic.	Jun-17	33	0	Option to license up to four I-O assets
Novo Nordisk	Innate Pharm.	Lic.	Jun-17	45	415	Global rights to IPH5401; DD royalties
Merck KGaA	F-Star	Lic.	Jun-17	30	1,000	Upfront €115 includes R&D + 2-yr milestones
BioLineRx	AgaImmune	Acqn.	Mar-17	6	U/D	Significant R&D spend required
Amgen	Inmatics	Lic.	Jan-17	30	1,000	Bi-specific antibodies
Servier	Pieris Pharma	Lic.	Jan-17	32	1,900	Access to PRS-332 + stake in four other assets
Pfizer	BioInvent	Lic.	Dec-16	16	500	Research collab + commercialisation of up to five antibody drugs
Bristol-Myers	Enterome	Lic.	Nov-16	15	N/A	Microbiome expertise to boost cancer immuno
Bluebird	Medigene	Lic.	Sep-16	15	1,000	Milestones and tiered royalties
Amgen	Advaxis	Lic.	Aug-16	40	475	Access to ADXS-NEO cancer immunotherapy
Celgene	Jounce Ther.	Lic.	Jul-16	225	2,300	Access to JTX-2011 and up to four assets
Servier	Sorrento Ther.	Lic.	Jul-16	28	785	Access to anti-PD-1 STI-A1110
Ono	Celyad	Lic.	Jul-16	12	306	Rights to NKR-2 T-cell immuno in SE Asia
JNJ	MacroGenics	Lic.	May-16	75	665	Global rights to MGD015 bi-specific
AbbVie	Argenx	Lic.	Apr-16	40	625	ARGX-115 + milestone + dd royalties
Merck & Co	Iomet Pharma	Acqn.	Jan-16	U/D	400	$400m acquisition
Novera Ther.	JanssenJNJ	Lic.	Sep-15	U/D	345	$344.5m in dev/reg & sales milestones
Gencia	Takeda	Lic.	Sep-15	U/D	500	$500m in dev/reg & sales milestones
Xencor	Amgen	Lic.	Sep-15	45	1,700	$1.7bn in clinical, regulatory & sales milestones
Jiangsu Hengrui	Incyte	Lic.	Sep-15	25	770	$770m ($90m regulatory; $150m development; $530m commercial)
Heptares	AstraZeneca	Lic.	Aug-15	10	500	Dev/reg milestones, plus DD royalties
Inhibrx	FivePrime Ther.	Lic.	Jul-15	10	380	Total up to $380m
Sprint Bio.	Bayer	Lic.	Jul-15	U/D	U/D	Undisclosed milestone payments
Globavir	Sorrento Ther.	Lic.	Jul-15	Zero	80	Dev/reg and sales milestones, plus royalties
Almac Discovery	Genentech	Lic.	Jun-15	14.5	349	Dev/reg & sales milestones, plus royalties
Curadev	Roche	Lic.	Apr-15	25	530	Dev/reg & sales milestones, plus tiered DD royalties
Checkpoint Ther.	TG Ther.	Lic.	Mar-15	0.5	164	Development and sales based milestones, plus tiered single digit royalties
NeuPharma	Coronado Biosciences	Lic.	Mar-15	1		Undisclosed dev/reg and sales milestones, plus tiered single digit royalties
Sorrento Ther.	NantWorks	Lic.	Mar-15	10	100	Milestone payments, 5% royalties
Flexus Bio.	BMS	Acqn.	Feb-15	800	450	$450m. Just IDO/ TDO acquired
Aurigene	Curis	Lic.	Jan-15	U/D	52.5	$52.5m/ programme
iTeos	Pfizer	Lic.	Dec-14	30	U/D	Undisclosed
Mars Symbio.	Calithera	Lic.	Dec-14	U/D	24.7	$24.7m in dev/reg milestones
Aduro BioTech	J&J	Lic.	Oct-14	30	817	Dev/reg and sales milestones, plus royalties
Aduro BioTech	J&J	Lic.	May-14	U/D	365	$365m in upfront and milestones
Anaptysbio	Tesaro	Lic.	Mar-14	17	108	$18m (R&D), $90m (reg., sub. & approvals)
Five Prime Ther.	BMS	Lic.	Mar-14	41	300	$300m per target
Aurigene	Pierre Fabre	Lic.	Feb-14	U/D	U/D	Not disclosed
Cellectis	Servier	Lic.	Feb-14	10	140	$140m for each of 6 products developed
Ablynx	Merck	Lic.	Feb-14	27	2300	€1.7bn ($2.3bn) for all targets
CoStim Pharma.	Novartis	Acqn.	Feb-14	U/D	U/D	Contingent milestones
Immunocore	MedImmune	Lic.	Jan-14	20	300	$300m per target
Immatics	Roche	Lic.	Nov-13	17	1000	$1000m (includes research funding)
			Average	**50.2**	**572.6**	
			Median	**25.0**	**432.5**	

Acqn.= Acquisition; Lic. = Licensing deal; U/D = undisclosed; Reg.= regulatory; DD = double digit royalties

Source: Hardman & Co Life Sciences Research

Corporate update

Redx has returned from administration as a streamlined group with a new Board, revised management team, and a smaller number of employees – although much of the restructuring had been undertaken prior to administration – and £13.6m working capital to invest in a re-focused R&D pipeline. The group will continue to operate from its leased premises in Alderley Park, which has now become the company's registered address. There has been no change in the capital structure of the group.

Registration

Incorporated in the UK with company registration number: 07368089.

Registered Office:

Block 33, Mereside
Alderley Park
Alderley Edge
Macclesfield,
SK10 4TG

Tel: +44 1625 469 900

www.redxpharma.com

New Board of Directors

Over the period of administration there have been changes to the Board. On it return from suspension, the Board will be composed as follows:

Board of Directors				
Position	**Name**	**Nominations**	**Remuneration**	**Audit**
Executive Chairman	Iain Ross			
Chief Executive Officer	To be appointed			
Chief Financial Officer	Dominic Jackson			
Non-executive director	Dr Bernhard Kirschbaum		C	
Non-executive director	Peter Presland			C

M = member; C = chair
Source: Company reports

Iain Ross – Executive Chairman

Iain Ross was appointed Non-Executive Chairman of Redx in May 2017 and has assumed the role of Executive Chairman in November 2017. In addition, he is Chairman of e-Therapeutics plc (AIM:ETX) and Novogen Ltd (ASX: NRT / NASDAQ:NVGN) and also a Non-Executive Director of Anatara LifeSciences Ltd (ASX:ANR). He is a qualified Chartered Director, and a Former Vice Chairman of the Council of Royal Holloway, London University.

Previously, he has held leading roles in multi-national companies including Sandoz, Hoffman La Roche, Reed Business Publishing and Celltech Group. He has advised banks and private equity groups on several company turnarounds. These include as CEO of Quadrant Healthcare, taking the company public and signing numerous collaborations before selling the business to Elan in 2001. As Chairman and CEO, at Allergy Therapeutics, he re-structured the balance sheet to re-position it as a largely debt free cash generative company prior to IPO. As Executive Chairman at Silence Therapeutics, he turned the business around through M&A and established collaborations with Pfizer, Astra Zeneca and Dainippon Sumitomo before completing a merger with Intradigm Inc.

Dominic Jackson – Chief Financial Officer

Dominic joined the company in November 2017 as Chief Financial Officer and becomes part of the new Board. He is an experienced financial professional who has undertaken a number of interim CFO roles in turnaround situations. He has worked in private equity since 2007 (DIC Europe, Merrill Lynch Global Private Equity and latterly for multiple financial sponsors) and in M&A prior to that (Deutsche Bank, PricewaterhouseCoopers). He has been seconded into portfolio companies as CFO on several occasions to stabilise distressed core businesses and implement value initiatives. Dominic qualified as a Chartered Accountant with Pricewaterhouse Coopers and is a member of the Chartered Institute of Securities and Investment and the Institute for Turnaround.

Dr Bernhard Kirschbaum – Non-Executive Director

Bernhard joined the Board in January 2016. He has over 25 years' experience in pharmaceutical research and drug development, having held leadership roles at Merck/Merck Serono, Sanofi-Aventis, Aventis and Hoechst Marion Roussel. He has expertise in a broad range of disease areas including oncology, immuno-oncology, immunology, neurological disorders and cardiometabolic diseases. He is chairman of the company's Scientific and Remuneration Committees and has agreed to work closely with the Company's scientific management team until a new CEO is appointed.

Peter Presland – Non-Executive Director

Peter joined the Board as a non-executive director in November 2017. He is a seasoned financial professional with has nearly 45 years' experience in business, much of that at the highest levels of management within both public and private companies. He has extensive public company experience, having previously been CFO and then CEO of CE Heath. In 1996, he devised the demerger of C E Heath's computer services operations into a separate publicly listed company, Rebus Group, becoming CEO initially and then Executive Chairman in 1999. Since 2001, Peter has pursued a portfolio non-executive career. A law graduate at King's College, London, he also qualified as a Chartered Accountant with Arthur Andersen. Peter will chair the Audit, Risk and Disclosure Committee.

Revised management team

Dr Richard Armer – Chief Scientist Officer

Richard joined Redx in 2012, becoming Chief Scientific Officer in 2014. He has significant experience in both small biotechnology and large pharmaceutical companies through various roles within Pfizer, Organon, Ardana, Lectus Therapeutics, and Oxagen. Richard's expertise is in drug discovery with a particular focus on lead optimisation activities, drug disposition, intellectual property and commercial scientific project positioning. He has experience across a wide range of therapeutic areas and has been successful in generating and progressing multiple clinical candidates.

Nicholas Adams – Chief Business Officer

He joined as the Company's first Chief Business Officer at the end of 2015. Nick has over 25 years' experience in the pharmaceutical industry, and in particular in business development. He has led a wide range of deal types, including in- and out-licensing, divestments, royalty buy-outs as well as M&A. He has also worked in clinical development in large and mid-sized pharmaceutical companies and in biotech. Most recently, he was Chief Business Officer of Clavis Pharma ASA, the Norwegian drug development company specialising in oncology. Prior to that, he was Vice President of Business Development at Antisoma Research plc, which developed therapies for cancer and autoimmune disease.

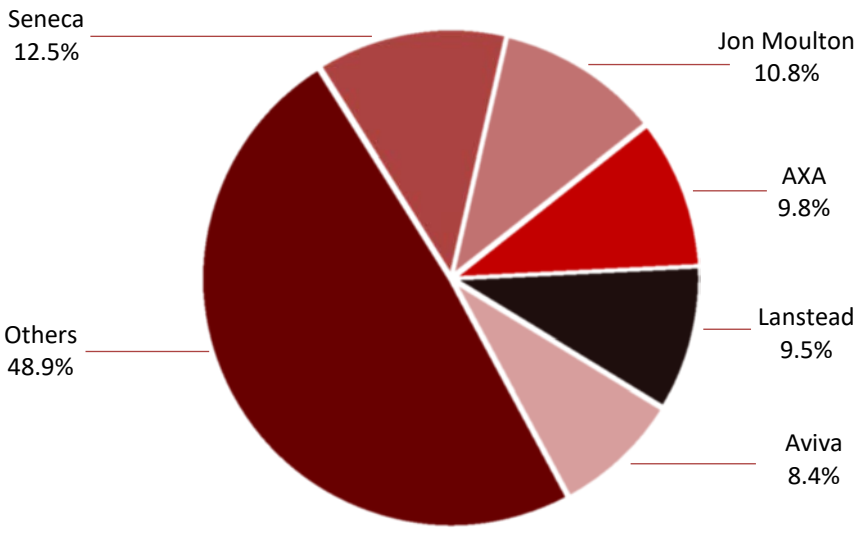
Dr Matilda Bingham – Head of Research & Operations

Matilda has 14 years' experience in drug discovery and joined the company in 2012. Her scientific background is in medicinal chemistry having worked at Organon, Schering-Plough and Merck (MSD) before joining the management team at Redx Pharma. Matilda played a key role in setting up the Redx Oncology subsidiary including laboratory design, recruitment, development of health and safety policies and the creation of the current project portfolio. In 2015 she was promoted from Head of Chemistry to Executive Director.

Share capital

Redx has 126,477,914 Ordinary 1p shares in issue. The company also has 4.25m options outstanding.

Key shareholders



Source: Company reports; Hardman & Co Life Sciences Research

Risks

Investments in small early stage companies carry a significant risk and investors must be aware of this fact. In our opinion, the following risks are particularly relevant. Each of them could have an impact on time to reach market, cash flow breakeven and profitability.

Financial/Dilution risk

The Joint administrators have signed off a revised business plan showing that the company has sufficient cash to fund the ongoing development pipeline through to early 2019. The company will require additional capital to progress its clinical and pre-clinical programmes. This could come by way of non-dilutive grant funding or exclusive licensing of some of its assets, both clinical-stage and pre-clinical stage, or it could raise further funds through the issue of shares which could be dilutive to shareholders.

Commercialisation

Management currently intends to out-license, partner or co-develop its pipeline assets at an appropriate stage that is in the best interests of shareholders. It does not intend to fund its assets through late-stage clinical development and then to market. There is no guarantee that management will be able to execute on this strategy, although there has been some validation from the disposal of the BTK programme to Loxo Oncology.

Patent robustness

As with all IP-rich companies, there is risk that the intellectual property is insufficiently covered by the global patents, allowing a competitor to gain market access. Any litigation could involve significant costs and uncertainties.

Regulatory

It is important for companies to liaise with regulators on a regular basis throughout the development programme. Any inadequacies could lead to regulatory action such as cessation of product development and loss of manufacturing or product licences.

Share liquidity

As with many small cap companies listed on AIM, there can be difficulty in buying and selling shares in volume. Market makers only guarantee prices in a very small number of shares.

Competition

The Company operates in a market dominated by larger competitors, many of which have greater financial resources to fund development programmes, marketing activities, etc.

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