Stock Data	
Share Price:	28.5p
Market Cap:	£28.1m*
Shares in issue:	98.47m*
52 week high/low:	87.0p – 18.1p

**Post Admission of the Placing shares*

Company Profile	
Sector:	Biotechnology
Ticker:	MTPH
Exchanges:	AIM, Nasdaq[1]

[1]Note: Ratio 1 ADS : 5 Ord. Shares

Activities

Midatech Pharma plc ('Midatech', 'MTPH', 'the Group') is a developer of therapeutic platform technologies and also focuses on the Research and Development ('R&D') of medicines for the treatment of rare cancers and other lethal diseases through in-house as well as partnered programmes while seeking to license its technologies.

Group website: www.midatechpharma.com/

1-year share price performance chart

Source: LSE

Past performance is not an indication of future performance.

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Midatech Pharma plc

Midatech has announced it has raised £10 million (gross) new funding through a UK equity placing (the 'Placing') to new and existing UK investors at an issue price of 28.5p per share. Turner Pope acted as sole bookrunner to this Placing.

The Placing follows publication of the Group's breakthrough data on successful encapsulation of a biologic using its Q-Sphera technology, along with details of significant progress across several of its other continuing internal and collaborative R&D programmes since announcing its strategic review some 13 months ago. The outcome was to halve cash burn while also adopting a more commercial approach to monetising its assets and technologies. Midatech meanwhile had been seeking a means to take the Q-Sphera platform into new and innovative applications in order to fully exploit the opportunities it presents. Using its expertise to develop an *in vitro* activity assay that measures the ability of an exemplar therapeutic monoclonal antibody ('mAb') to specifically combine with a carbonate antigen to demonstrate it can be correctly folded and functional, represents a potential 'game changer' for the global therapeutic market not only through sustained release but also local/targeted delivery to potentially create the world's first long-acting protein. Representing a scientific leap of significance for the global therapeutic sector, this news along with expectation of moving two indications for MTX110 forward into a potentially pivotal clinical trial for DIPG and a pilot Phase I for GBM in 2H 2021, delivery of two Q-Sphera proof-of-concept ('PoC') formulations to collaboration partners plus similar outcomes for two internal programmes, suggests the remaining months of this year will be much heavier in prospectively exciting news flow for the Group.

Use of Proceeds

Midatech's Board expects the net proceeds of the Placing to be used to:

- Develop, to PoC stage, additional mAb formulations using the Group's Q-Sphera technology following its success with the exemplar mAb disclosed as part of its R&D update announced on 17 June 2021.
- Add new small molecule Q-Sphera programmes to the Company's internal pipeline.
- Initiate a Phase II clinical study of MTX110 in Diffuse Intrinsic Pontine Glioma ('DIPG').
- Initiate a pilot Phase I clinical study of MTX110 in Glioblastoma Multiforme ('GBM').
- General corporate purposes.

Taking into account available existing cash plus the anticipated net proceeds, Midatech now expects to have sufficient cash resources to fund operations into the first quarter of 2023.

Background to Midatech's exceptional recent progress

When announcing a strategic review of its R&D platform back in April 2020, Midatech's pipeline consisted of just two programmes, MTD201, the Q-Sphera octreotide program, and MTX110, the MidaSolve DIPG program. The outcome resulted in termination of one of these, MTD201 and the closure of the Group's Bilbao operations. This in turn, halved its cash burn rate and resulted in the Board taking a decision to move away from its previous targeted approach to one that instead pivoted

to specifically permit a 'multiple shots on goal' strategy. Effectively this means more projects, albeit at an earlier stage, creating more partnering opportunities and chances to demonstrate (and monetise) the capabilities of its Group's proprietary technologies.

As a result, by the start of 2021, Midatech had taken the number of its active programs up to nine (see below), of which three are partnered. Since then, two internal Q-Sphera programs have been advanced from formulation into preclinical studies, along with delivery on two its three partnered programs (which are also now being taken into preclinical studies) while, in 2H 2021 it expects to move MTX110 into Phase 2 for DIPG and into Phase 1 for GBM.

Midatech Pharma – Therapeutic Pipeline

ID	API	Therapeutic Area	Administration	Formula-tion	Preclinical	Phase I	Phase II	Partner Status
Q-Sphera:								
MTD211	brexpiprazole	Schizophrenia / MDD	LA injectable					–
MTD219	tacrolimus	Transplant rejection	LA injectable					–
MTX213	undisclosed	undisclosed	LA injectable					Collaboration
MTX214	undisclosed	undisclosed	LA injectable					Collaboration
MTX216	undisclosed	undisclosed	LA injectable					Collaboration
MidaSolve:								
MTX110	panobinostat	DIPG	Infusion via CED					–
MTX110	panobinostat	GBM	Infusion via CED					–
MTX110	panobinostat	Medulloblastoma	Direct to tumour					–
MidaCore:								
MTX114	methotrexate	Psoriasis	Topical					–

Source: Midatech, Investor Presentation of 17 June 2021

In all cases, the strategy for monetisation of assets is based on seeking licensee partners once the PoC stage has been reached, in order to fund continuing development and manufacturing scale-up before moving toward commercialisation. Encompassing approved APIs across both its internal and external pipelines, for current preclinical assets this means it will not be seeking to change the products approved indication, focusing instead on formulation including drug loading, injectability and dissolution to improve delivery and/or targeting of the drug to meet an agreed profile. Where the Group might seek to change one or more indications, such as with its clinical asset MTX110, for which the approved API is for multiple myeloma but has been repurposed for brain cancers, PoC means pilot clinical data in that new therapeutic area.

On this basis, Midatech's revenue model determines that collaboration agreements require direct costs be reimbursed at a multiple by the partner to get to PoC. It is not in the Group's interest to enter a license at that point, however, as it would not be possible to secure appropriate terms. Instead, if it can deliver PoC and the partner has success in their subsequent *in vivo* enabling studies, then there would most likely be an appetite to enter a license on standard terms, which may include upfront payment, reimbursement of ongoing costs, development and sales milestones plus royalties.

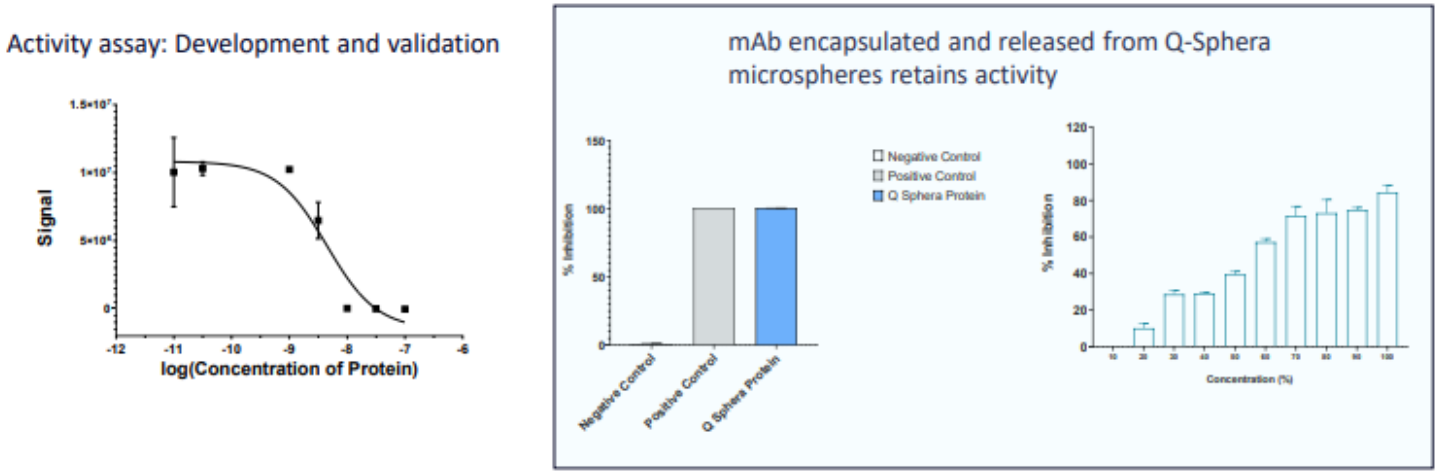
Modified release mAb programme – Q-Sphera long-acting depot injection

Following its strategic review, Midatech had been looking for means to take the Q-Sphera platform into new and innovative applications with the ambition to fully exploit the capabilities of its technology. One such application included the encapsulation of biologics, in particular monoclonal antibodies ('mAb') for controlled release. Large molecules present a significant challenge in terms of formulation into long-acting injectables, as their complex tertiary structures are delicate with great sensitivity to the environment and the processes under which they are manufactured. Traditional process such as, for example, double emulsion, which requires the drug is dissolved in aqueous solution, has been seen to be unsuitable and results in denaturing of the molecule. As a result, there are presently no long-acting formulations available.

Yet the Q-Sphera manufacturing process is known to be relatively benign and avoids the need for inclusion of such potentially damaging processes. The 'open honeycomb' structure that is a signature of Q-Sphera creates microspheres without inaccessible points that could result in pockets of protein degradation. Having successfully formulated short-chain peptides in the past, this provides confidence that the technology is fundamentally compatible with such an opportunity. The challenge going forward, remains in scaling up the molecules that could need to be three-times or more the size already demonstrated while also introducing significantly greater complexity. Should this be achieved, however, it could result in what might be described as a 'game changing' outcome for the life sciences industry in general and Midatech in particular.

With many therapeutic proteins, the aim is bind with a specific target to demonstrate that the antigen can be correctly folded and retain its functionality. Midatech accordingly used its expertise in analytical methods to develop an *in vitro* activity assay that measures the ability of an exemplar therapeutic monoclonal antibody to specifically combine with a carbonate antigen in order to demonstrate it is correctly folded and remains functional (i.e., not denatured). Data in the left-hand chart (below) indicates that the assay is sensitive to increasing concentrations of the exemplar mAb as the luminescence signal decreases. The central bar chart shows that mAb encapsulated and released from Q-Sphera in an *in vitro* dissolution model is representative of how microspheres release drug in the body, demonstrating full activity is retained in the same way as the positive control (exemplar mAb not encapsulated in Q-Sphera). The chart of the right also indicates the linear relationship between protein concentration and assay inhibition. Follow-on development steps will be for further optimisation of drug loading and dissolution profile, before establishing potential application across multiple high-value mAb therapeutics that might be translated to scalable and commercially viable products.

Analytical Methods Demonstrate mAb Assays Preserving their Functionality



Source: Midatech, Investor Presentation of 17 June 2021

Potential 'Game Changer'

As noted, success in translating biologics as long-acting formulations is considered a potential 'game changer' for the life sciences sector. For Midatech, it is clear that there are a large number of candidates both on market and under development that could benefit from application of such an advance in technology, opening up opportunity not only for sustained release but also local and targeted delivery.

To put this into context of potential scale, Midatech constructed a table detailing the top-10 mAbs by global sales in 2020 which totalled US$75 billion, or almost half of the total global market which has been valued at c.US$154 billion. Opportunities include improved protein stability, reduced elimination and longer durations between doses, leading to better performance for patients, as well as reduced healthcare costs for the payer. Options for local delivery of high concentrations provide potential for reduced toxicities and side effects that are common with systemic delivery of mAbs, as well as reducing the total volume of costly drug required (resulting in a significant reduction in cost of goods) as well as potentially extending the life time of drugs that otherwise might be set to fall off-patent.

Midatech of course is not alone in seeking to extend the half-life of mAbs and has identified other players with similar objectives. Significantly, however, the bio-delivery and biodistribution of medicines using Q-Sphera offers a number of significant attributes, not just in increasing stability but also ensuring it can be effected in a commercially viable way whereby it is repeatable and robust in acceptable scale. There are other technologies being developed across a biotech industry that targets increase stability of proteins by, amongst other things, seeking to apply AI/machine learning as well as changes to formulation. Mostly, however, these have very lengthy development routes, compared with Q-Sphera whose concept has become well understood. Midatech has also completed extensive diligence with a wide sweep of academic papers etc. to establish that no other party has been able to undertake such a process on a commercial scale without excessive wastage that makes it wholly uneconomic.

Global mAbs Market – Top Ten by Revenue in 2020

#	Brand	Generic	Company	Global sales 2020 ($Bn)	Current administration
1	Humira®	adalimumab	AbbVie	19.8	Injection every 2 weeks
2	Keytruda®	pembrolizumab	Merck	14.4	Injection every 3 weeks
3	Stelara®	ustekinumab	Johnson & Johnson	7.7	Injection, 4 weeks, every 12 weeks
4	Opdivo®	nivolumab	Bristol Myers Squibb	7.0	Injection every 4 weeks
5	Avastin®	bevacizumab	Hoffman La Roche	5.0	Injection every 2 or 3 weeks
6	Ocrevus®	ocrelizumab	Hoffman La Roche	4.4	Injection, 2 weeks, every 6 months
7	Rituxan®	rituximab	Hoffman La Roche	4.3	Infusion, 4 or 24 weeks
8	Darzalex®	daratumumab	Johnson & Johnson	4.2	Injection weekly, then 3 weekly, then 4 weekly
9	Soliris®	eculiumab	Alexion	4.1	Infusion, weekly then every 2 weeks
10	Cosentyx®	secukinumab	Novartis	4.0	Injection every 4 weeks
				74.9	
	Total mAb market 2020			154	

Source: Midatech, Investor Presentation of 17 June 2021

Following this success and recognition of the potential scale of the opportunity it is now presented with, Midatech's Board have allocated part of the new funds raised in order to develop to PoC stage, additional monoclonal antibody ('mAb') formulations using its Q-Sphera technology. That said, being taken only to PoC is a relatively economic process for the Group to undertake, even if buying the API itself is more expensive that for small molecules. Notwithstanding this, costings would amount only to consumables (and allocated laboratory time) before seeking partners to fund development through the clinical process.

MTX110 – Entering Phase 2 having demonstrated an expectantly high DIPG survival rate

Last October, the Group announced results from the Phase 1 study that were undertaken at University of California San Francisco ('UCSF'), which showed good safety and tolerability at the proposed Phase 2 dose and unexpectedly good survival data (with a median at 26 months compared with a median of just 10 months for a historical cohort of over 300 patient cases).

A second Phase 1 trial is also ongoing at Columbia University, using a more patient-friendly 'pump and catheter' or convection-enhanced delivery ('CED') system, for which post-infusion MRI scans have demonstrated an excellent distribution of the drug at the pons of the brain. Following success of the Phase 1 trials and a pre-IND meeting with the FDA, development is moving into Phase 2 (subject only to final FDA confirmation), based on a an open-label, single arm study for 21 newly diagnosed patients (ranging 3 to 18 years of age) over six cycles of 48-hour continuous infusion, 2 to 4 weeks apart across a multi-centre programme. Importantly, as well as safety and tolerability, this study will be powered to yield a statistical result on survival.

MTX110 – Identifying a much larger potential market opportunity in GBM

GBM has a much larger potential market in DIPG, with 2 to 3 diagnoses per c.100,000 population each year, yet it is still a poorly served market opportunity, estimated in value to range from US$3 billion to US$5 billion with limited other treatment options

(due to the fact that most drugs do not readily cross the blood-brain barrier). CED is, however, capable of delivering high concentrations of MTX110 directly to the tumour site to overcome this problem. The clinical trials will be designed to demonstrate that MTX100 is capable of killing sufficient of the cancer cells to result in a significant reduction in tumour volume. This was demonstrated by compelling mechanical and preclinical evidence of efficacy in GBM *in vivo* models and, more recently *in vitro* across a further four patient-derived GBM cell lines. This data strongly supports the pilot phase 1 study which is being planned for later this year.

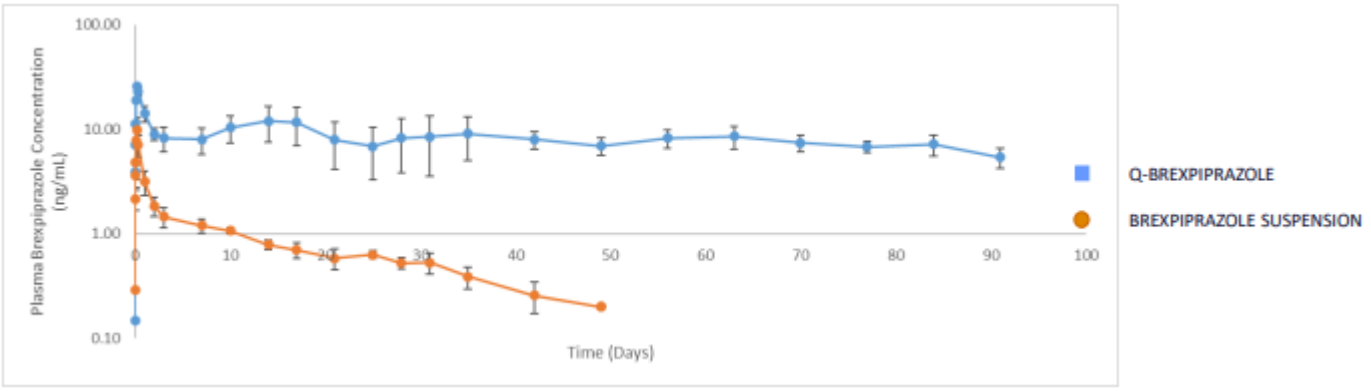
MTD211 – Q-brexpiprazole, extended-release depot injection

Midatech's internal pipeline of small molecules in pre-clinical development include MTD211 for schizophrenia.

The market for antipsychotic drugs is growing rapidly and predicted to reach over US$21.8 billion by 2027. In the US, for example, 1% of the population live with schizophrenia, while 7% are said to have at least one depressive episode. The trend being witnessed is clearly toward longer-acting formulations which can benefits patients with improved compliance of their drug regimes, as well as fewer hospitalisations in support of lower payer costs.

Currently Otsuka America Pharmaceutical, Inc's Rexulti® (brexpiprazole) is only approved as an oral tablet. Q-brexpiprazole's target product profile includes delivery of a 3-month depot injection suitable for low pain subcutaneous application and potential use with self-injecting devices. Supporting technology demonstrates the capabilities of Q-Sphera technology; an *in vivo* study, in which the Group pitched its Q-brexpiprazole directly against a brexpipizole suspension formulation representative of technology that might be used with other sustained release antipsychotic products, produced the following concentrations (see chart below) after a single SC Depot injection:

Plasma Brexpiprazole Concentrations *In Vivo* After a Single SC Depot Injections (n=4)



Source: Midatech, Investor Presentation of 17 June 2021

MTD211 achieved a drug loading of 20% enabling a therapeutically relevant dose to be consistently delivered over 90 days with minimal burst release, demonstrating a dramatic improvement over the suspension formulation. Next steps will be to further optimize the formulation based on human PK steady state simulations of rabbit data. In parallel, Midatech will begin engaging with potential licensing partners and take steps toward GMP manufacturing in order to support clinical development.

MTX214 and MTX216 – Partner Collaboration

In July 2020, Midatech announced a new collaboration for the Q-Sphera platform with a European affiliate of a global healthcare company. This was a multi-project agreement designed to apply the platform for APIs nominated by the partner with one of the objectives being to discover new modernities for drug delivery. Over the course of the program, the partner has expanded the collaboration to include three active projects. PoC formulations have since been established for MTX214 and MTX216, which began dosing for *in vivo* studies earlier this month. Should the IND-enabling studies be successful, the next step would be for the parties to enter a license agreement to access the Q-Sphera IP.

Secura Bio still seeking to terminate Midatech's Panobinostat license

Regarding the complexities covering MTX110's Panobinostat license that Midatech originally secured from Secura Bio Inc. and which have already been discussed at length, the Group has received a further letter from their counsel, seeking (once again) to terminate the agreement while this time also demanding non-exclusive license to Midatech's own IP. Whether this latest additional demand is down to the fact that Secura Bio recognises the value Midatech is creating through its research is unclear, but having previously attempted to force the Group's withdrawal in June 2020, this appears to simply repeat an exercise which the Board considers to be entirely without merit. Meanwhile discussions with an external partner for co-development of MTX110 are continuing, although not surprisingly they have been hindered by COVID-19. At best, Midatech considers the distraction caused by Secura Bio to be unfortunate and is presently taking legal advice. The Group's position is unchanged and has invited Secura Bio to close their action multiple times. Their latest attempt, on slightly different grounds, is considered opportunistic but no more realistic than the first. Given a 'worst case' scenario, however, a terminated license would mean that while MPTH retains safe harbour to work with the molecule in R&D, on the expected DIPG development schedule it would not be able to commercialise it until the composition of matter patent expires in 2026; it probably would not impact the GBM product, however, as it is unlikely to be sufficiently advanced by that stage in any case.

Timelines for further news updates and potential revenue generation

The second half of 2021 looks to be relatively busy for Midatech on the news front and opens the door for new revenue generation. MTD211's Q-brexpiprazole profile appears to be almost ideal; possibly one more round on formulation plus confirmation through another *in vivo* study over the coming couple of months could be justified, but it is then likely to be ready to identify a licensee to move it forward. An announcement on this basis might be anticipated during 2H 2021. Being an internal program, this will be opened up as an auction amongst interested parties for the rights. The two PoC developments delivered to the Group's partner could see their *in vivo* studies completed within next 90 days or so, which open the opportunity to also bring it on board through a tech transfer agreement around the same time. Of course, should the partner not wish to proceed, the program comes to an end which, although considered relatively unlikely, is the reason the Board keeps a balance between partnered and internal programmes. Given the major potential and sector interest in the modified release mAb programme and Midatech's intention to identify additional formulations using its Q-Sphera platform, further updates might also be expected on this in coming months, along with news of progress for MTX110 as its clinical trials are moved forward.

TPI retains its valuation for Midatech, equivalent to 104.2p/share

TPI has not as yet revised its valuation for Midatech following the exceptional news contained in its news release of 17 June 2021. While this is expected to result in an increased sum-of-parts across the Group's different internal and external programmes, at this time TPI retains the £65.7m* valuation it awarded to Midatech in analysis published on 10 September 2020. Back then, this produced in a target price that was equivalent to 104.2p/share*. Within this, prudent assessment was weighted heavily toward the Group's Q-Sphera™ platform (which at that time had secured two important collaborations with Big Pharma with potentially more in the pipeline), to which MTX110 added just a further £5.2m with nothing at all for the Group's remaining (but presently suspended) clinical and pre-clinical programmes (being treated as prospective upside only). Recognising that the new funding announced today provides Midatech with sufficient resource to progress its multiple opportunities, TPI will continue to assess upside potential. In particular, this is with respect to the potentially 'game changing' opportunity presented through its new modified release mAb programme, along with additional value creation through its other technology platforms and the fact that internal developments could possibly receive approaches from external parties interested in either partnering or considering outright purchase of the therapeutic opportunity based on upfront payments, milestones and/or royalties. The still unresolved legal dispute with Secura Bio with respect to its purported termination of HDACi Panobinostat, MTX110's API licence agreement, complicates the issue somewhat, although Midatech's Board remains clear that it does continue to have the right to use the drug for research purposes. Beyond this, discussions regarding future opportunity to commercialise this MidaSolve-based therapeutic are likely to continue given the molecule is now relatively near patent expiry, suggesting potential to arrive at an earlier negotiated conclusion.

***Please note that TPI's valuation is based on financial modelling and there is no guarantee that such a valuation will ever be realised, therefore please do not base investment decisions on this valuation alone.**

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