Midatech Pharma plc

Corporate Overview

November 2021

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Midatech: Corporate overview

- Drug delivery biotechnology company with disruptive proprietary micro and nano technology platforms
- Rapid R&D innovation core to success, delivering First-in-Class sustained/ modified release therapeutics
- Dual-listed on LSE AIM: MTPH and NASDAQ: MTP
- Headquarters, R&D, pilot scale manufacturing in Cardiff, UK
- Approximately 22 employees

LEFT TO RIGHT: Fiona Sharp Group Controller, **Dmitry Zamoryakhin** Chief Scientific Officer, **Kelly Conlon**, Vice President translational Medicine, **Stephen Stamp** CEO and CFO, **Dan Palmer** Vice President Technology

Midatech: History and milestones

Establishment

- Company formed, acquired GNP technology from CSIC, Madrid

2000

2014

IPO

- IPO on AIM market, London
- Acquired Q-Chip, Q-Sphera technology

Public Listing

- Listing on NASDAQ
- Acquired DARA Biosciences, renamed MPUS

2015

2018

Growth

- Sale of MPUS
- Focus on MTD201

Realignment

- MTD201 ‘102 trial reports
- Strategic Review, closure of Bilbao
- MTX110 Phase I data

2020

2021

Proving the model

- Delivered PoC (x2) to collaborator
- Q- brexpiprazole in vivo data
- Q- mAb encapsulation data

Midatech: Patented drug delivery technologies

Improving the bio-delivery & bio-distribution of medicines

- Optimized clinical solutions
- Improved health economics
- Reduced production cost
- Opportunities to extend life cycles of maturing drugs

Q-Sphera™

Sustained Delivery

- Precision clinical performance
- Advanced technology manufacturing
- Distinct competitive advantage

MidaSolve™

Local Delivery

- Converts oral meds into liquid meds
- Increases routes of administration
- Enables direct tumor injection

MidaCore™

Targeted Delivery

- Ultra-small size (2-4nM)
- Can bind multiple agents: Targeting, 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					_

MTX110

MidaSolve™

Panobinostat infusion with CED

Intratumoral brain cancer treatment

MTX110 Glioblastoma Multiforme (GBM) prioritised

- **GBM - much larger market potential**
  - 2-3 / 100,000 diagnoses pa[1]
  - Survival ranges from 13-30 mos depending on MGMT methylation[2]
- **Rationale for MTX110 in GBM**
  - Many anticancer drugs fail due to poor BBB penetration
  - MTX110 is delivered intra-tumourally at high doses, bypassing BBB
  - Compelling mechanism and preclinical evidence of efficacy in GBM models
- **IND for Phase I pilot study imminent**
- **Panobinostat licence**
  - Secura Bio counsel seeking to terminate licence (again), demanding non-exclusive licence to Midatech IP

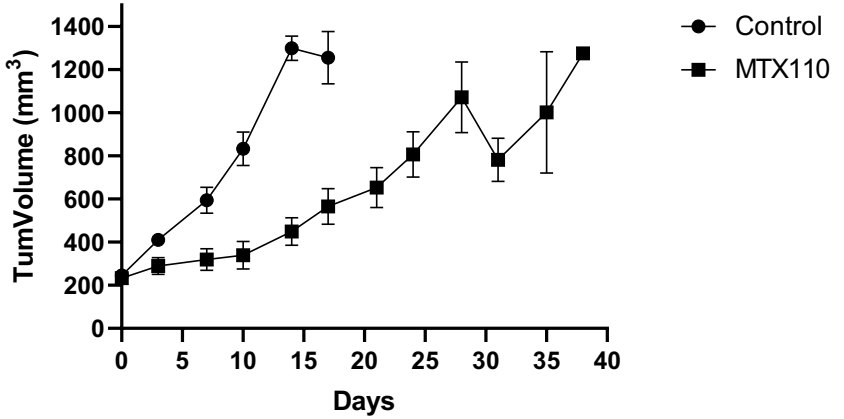


Figure 1. Tumour volume data from IDH1 mutated tumour bearing mice resulted in a significant reduction in tumour growth compared to control.

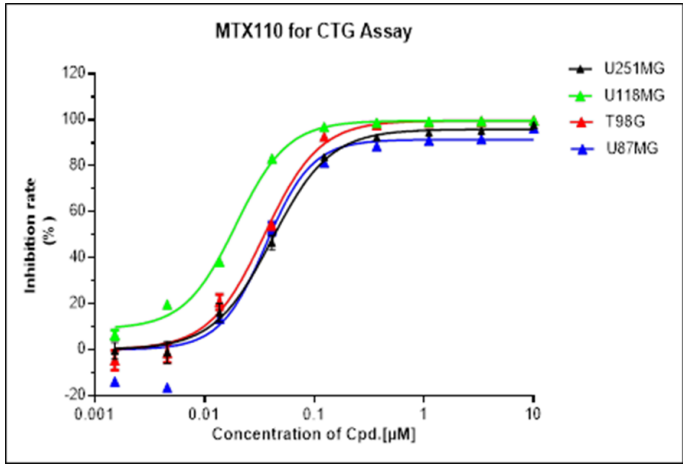
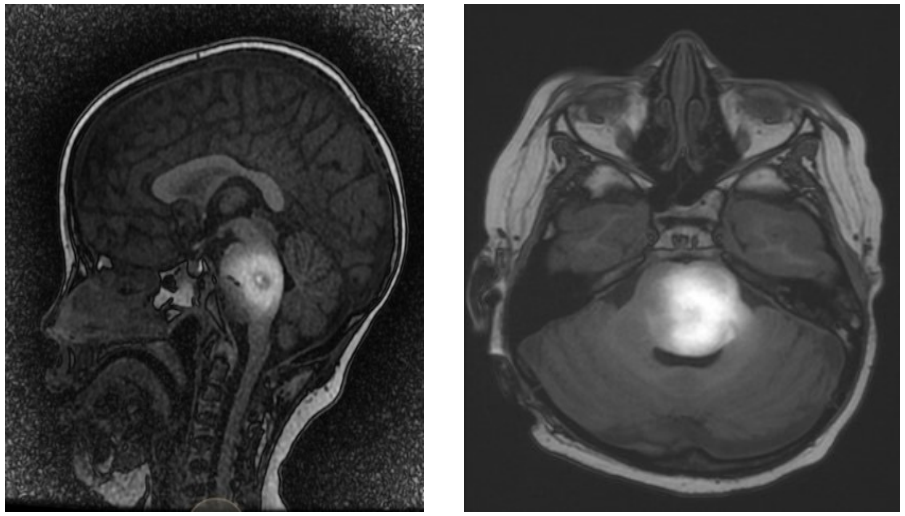


Figure 2. MTX110 is highly potent at therapeutically feasible concentrations in four patient-derived GBM cell lines

1. American Journal of Neurosurgeons
2. Radke et al. (2019)

MTX110 – Diffuse Intrinsic Pons Glioma (DIPG)

- **Phase I programme (201 and 203 Trials):**
  - Dose range selected for Phase II, encouraging overall survival (26mos vs 10 mos)
- **Phase II programme:**
  - Phase II open-label
  - Newly-diagnosed patients (3-18 yrs)
  - Administration of MTX110 via pump and catheter
  - Multi-centre programme



Gadolinium contrast enhanced region on post-infusion MRI showing effective distribution of MTX110 to the DIPG tumour after CED in Phase I trial: MTX110-203

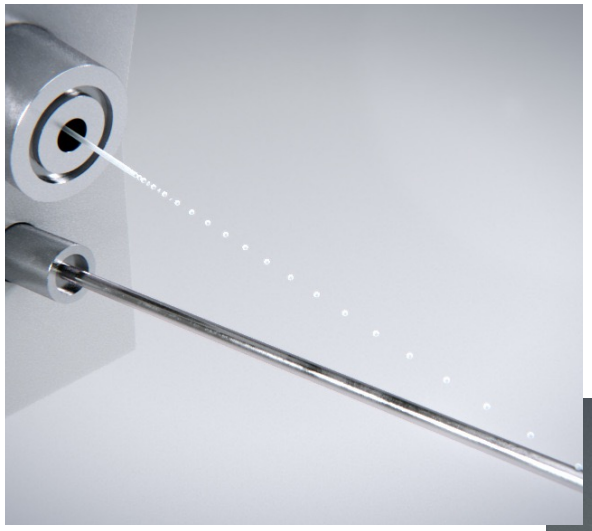
Primary objectives	Secondary objectives	Exploratory objectives
• Safety and tolerability • Overall survival at 12 mos (OS12)	• Median overall survival (OS) • Progression-free survival (PFS) • PFS at six mos	• Functional neurological outcomes • Quality of Life • Drug distribution post infusion • Gene mutation, expression

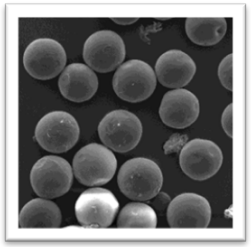
Q-Sphera Programmes

Technology: unique 3D microsphere printing

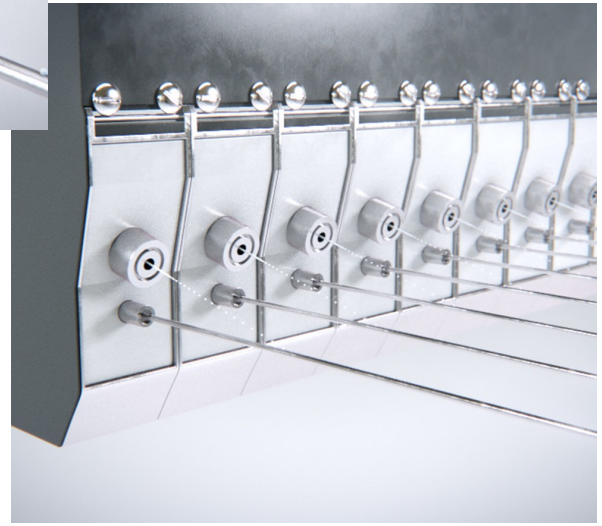
- Industrial printing technology reinvented
- Controlled piezoelectric droplet generation of polymer / API / solvent
- Instantaneous de-solvation in anti-solvent fluid jet produces monodispersed microspheres
- Frequency of up to 120kHz per aperture
- GMP scale-up manufacturing setup in progress

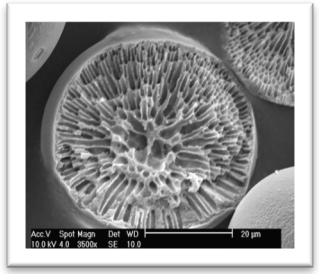
3D Pharmaceutical Printing Process





100 µm



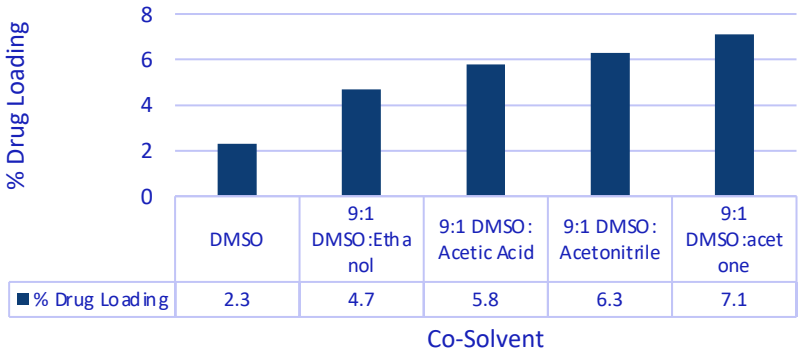


20 µm

Optimizing: case study

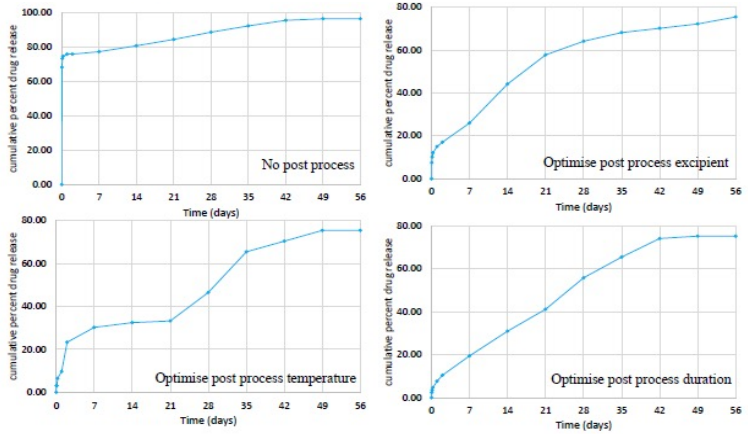
Optimizing drug loading

- Use of a co-solvent that maximises solubility
- Avoidance of poorly tolerated organic diluents such as DCM
- Tailoring the formulation solvent to enhance drug loading



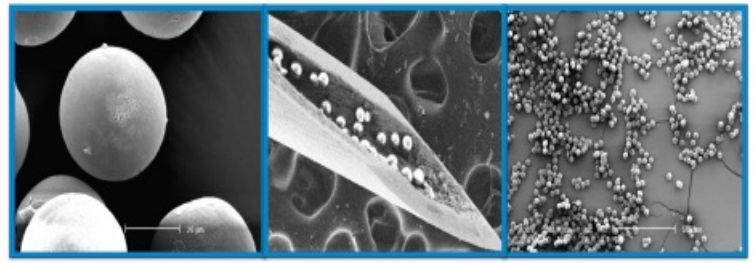
Attenuating burst release

- Introduction of a process step to reduce burst
- Removal of surface drug without complete reduction of loading
- Modification of release rate by selection of process variables

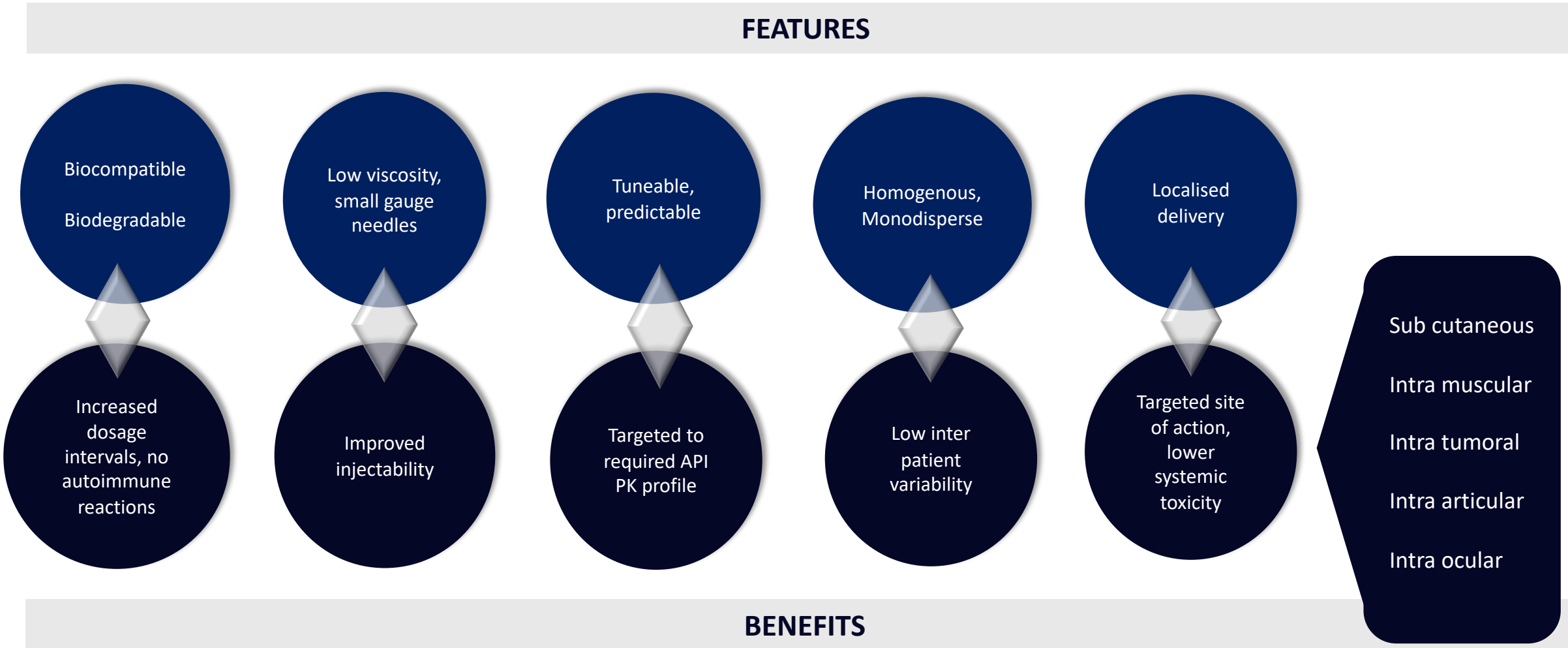


Particle injectability

- Production of microspheres of <35µM – injectability through needles down to30G
- Limit microsphere polydispersity
- Development of a reproducible, injectable suspension

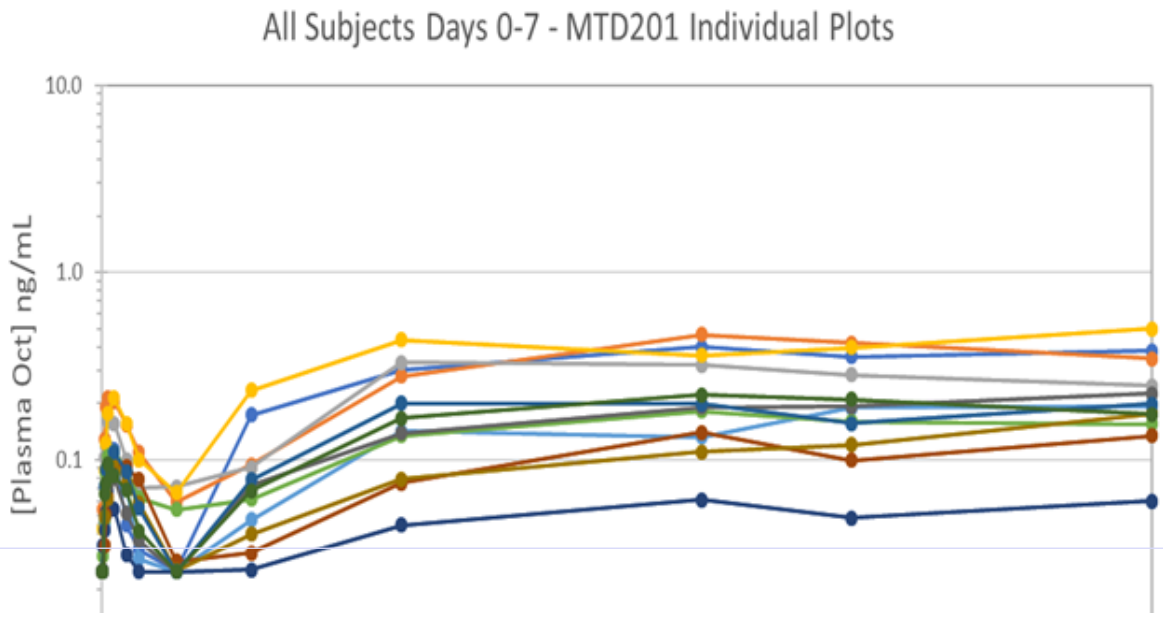


Features / benefits: multiple attributes, many applications

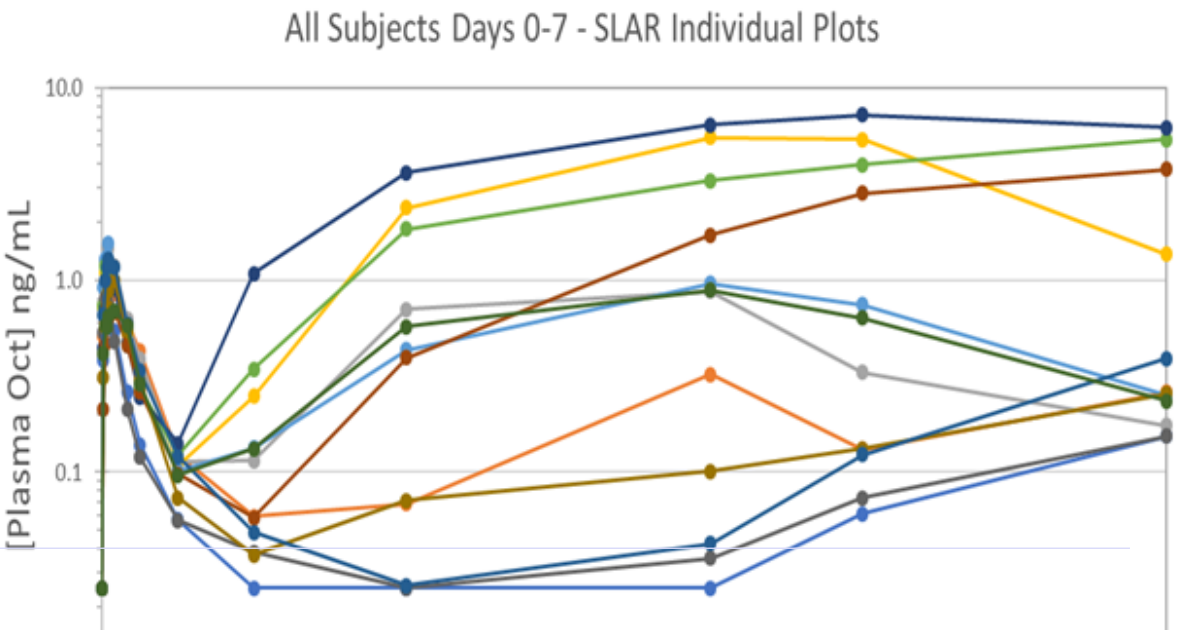


Clinical validation: Q-octreotide Phase I case study

Q-octreotide



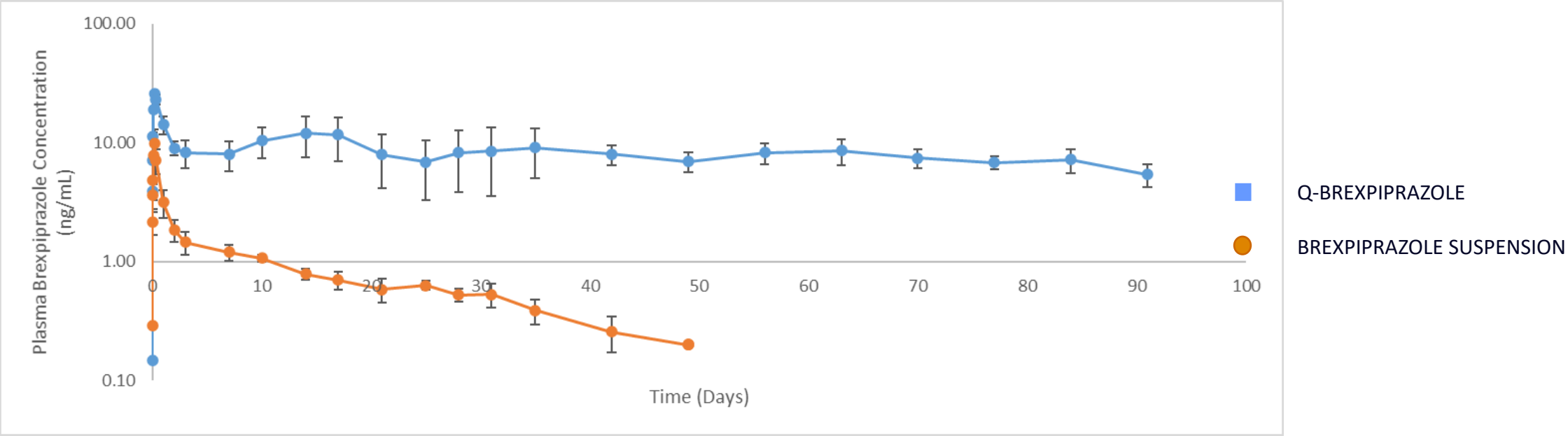
Sandostatin LAR®



Use of Q-Sphera with octreotide resulted in homogeneous, predictable drug exposure profiles in treated patients as compared to the approved long-acting formulation

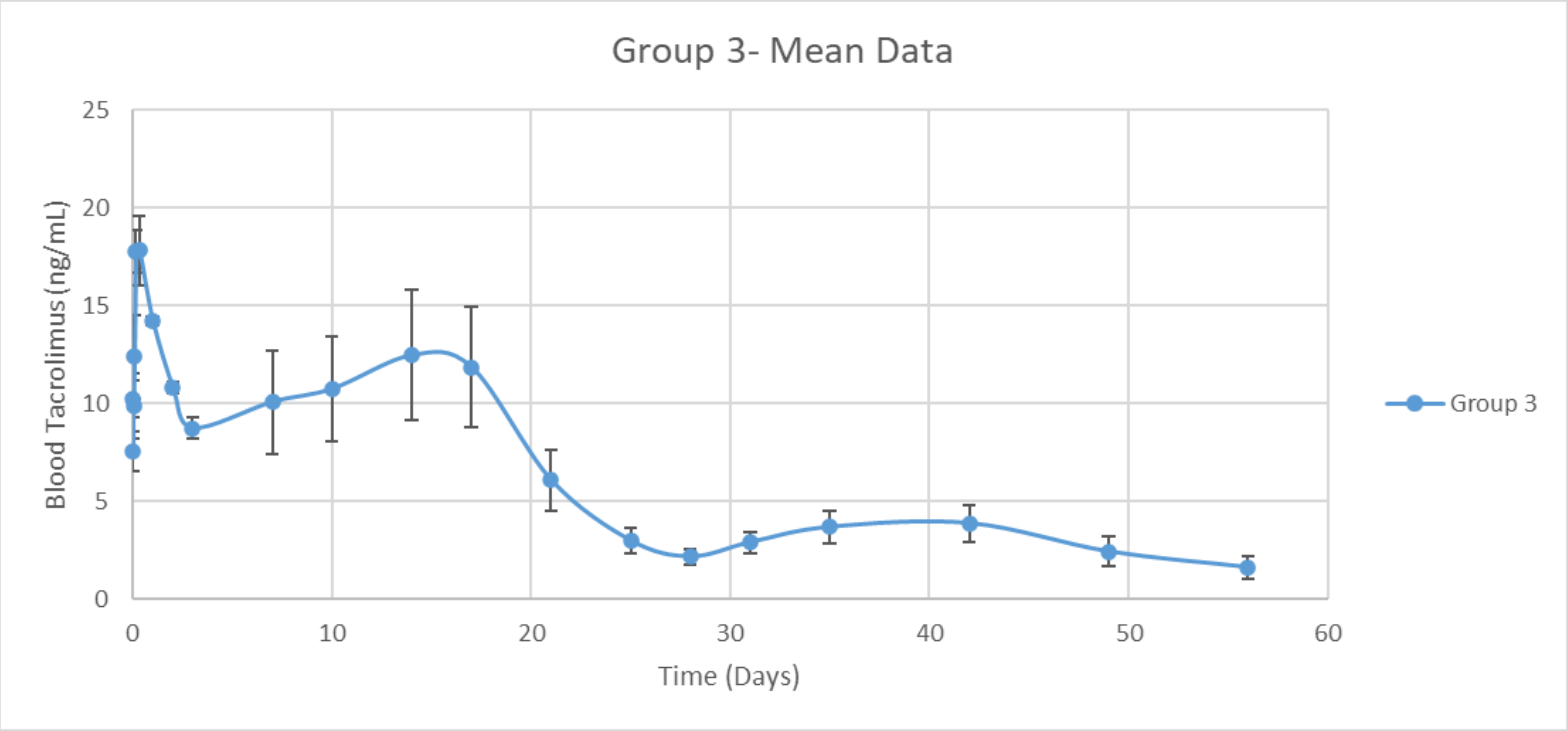
MTD211: Q-brexpiprazole *in vivo* pharmacokinetics

Plasma brexpiprazole concentrations in rabbits after a single SC Depot Injection (n=4)



- **Excellent Q-Sphera drug loading achieved (20%) enabling up to 90 days sustained delivery**
  - Outperforms drug suspension approach used for other AAPs, which relies on the poor solubility and slow dissolution of drug particles at the injection site
- **Formulation optimisation ongoing based on human PK steady state simulations of rabbit data**

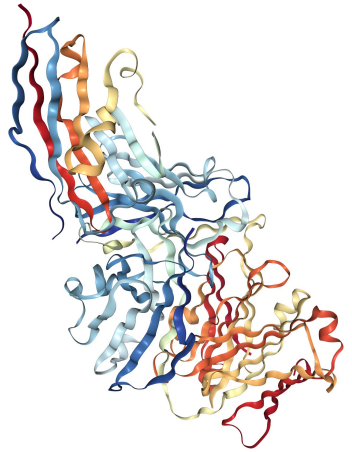
MTD219: Q-tacrolimus *in vivo* pharmacokinetics



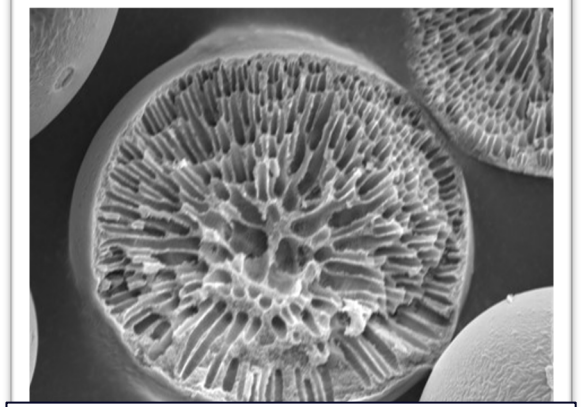
- Formulation undergoing refinement
- Potential three week (vs BID ProGraf®) formulation

Modified release of biologics

- **The challenge:**
  - Large molecules (>150kDa) are delicate, easily ‘denatured’ in manufacturing
  - There are no approved, long acting formulations of mAbs
- **Midatech credentials:**
  - Q-Sphera formulation / manufacturing process is relatively benign
  - Open honeycomb structure allows diffusions and avoids pockets of degradation
- **The opportunity:**
  - Many latest generation medicines are biologics / proteins
  - Top 10 mAbs account for $75Bn sales (2020)[1]
  - Game-changing opportunity for Q-Sphera / Midatech



Exemplar structure of an IgG4 mAb

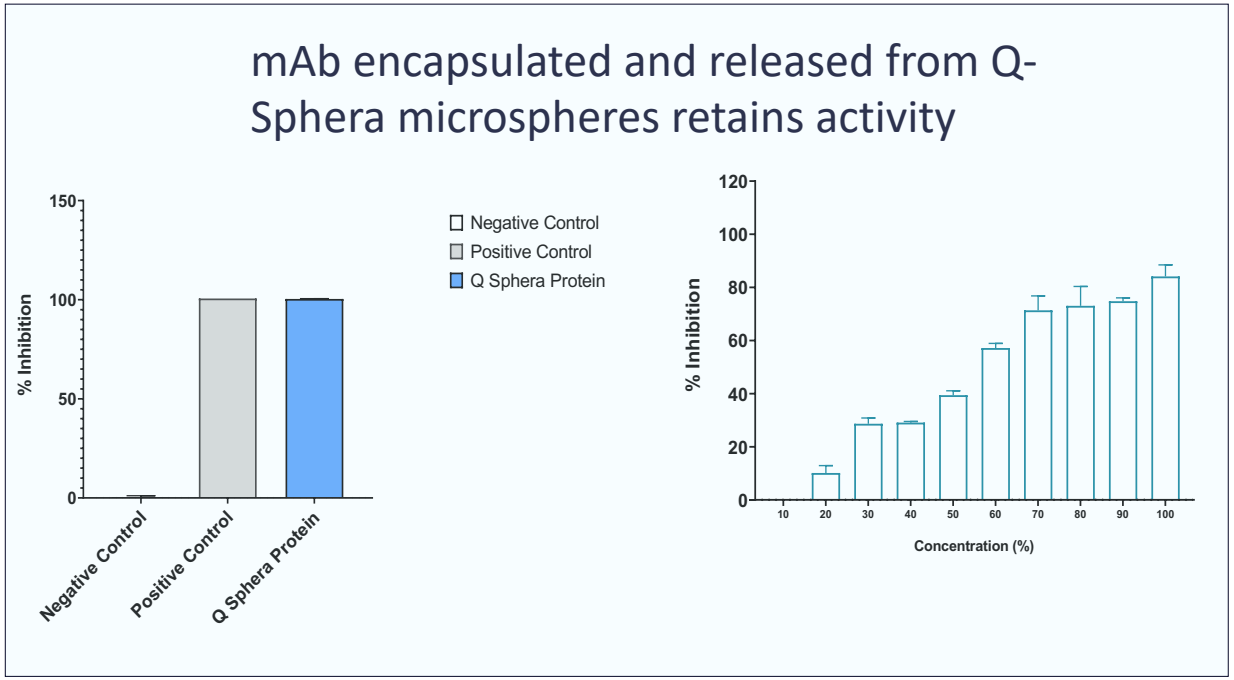


SEM image of Q-Sphera™ microsphere internal structure

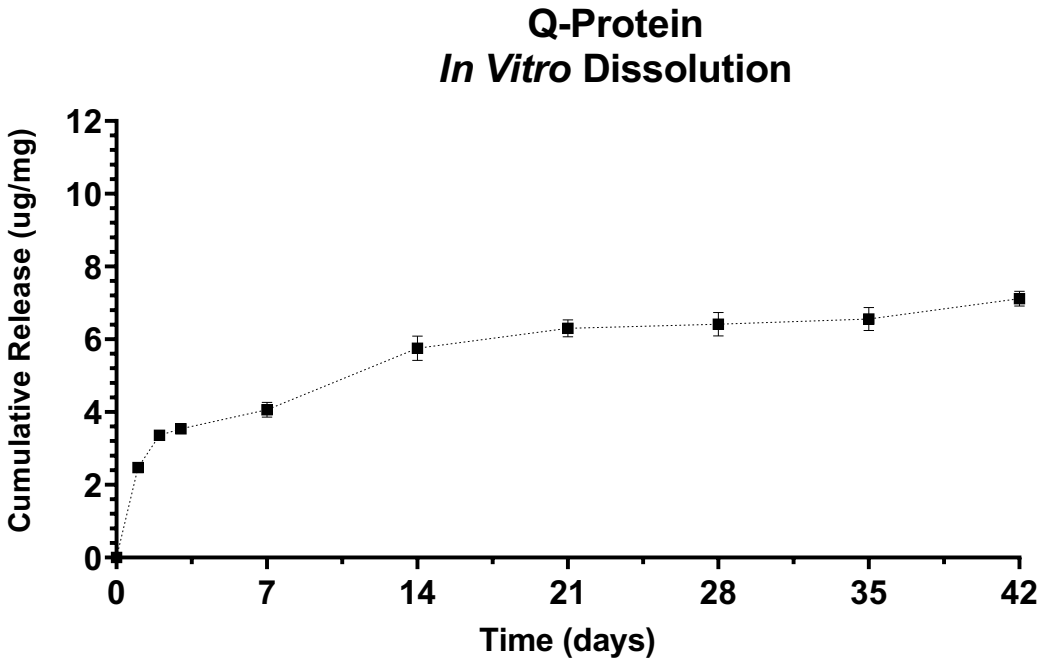
1. Source: Global Data

Potential in large molecules (mAb exemplar)

Preservation of antigen binding in vitro



Dissolution profile

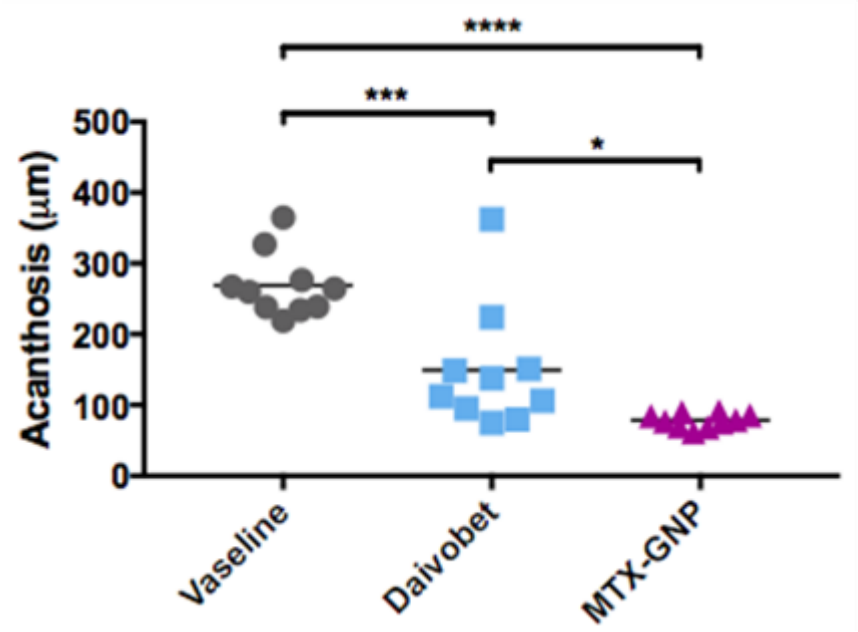


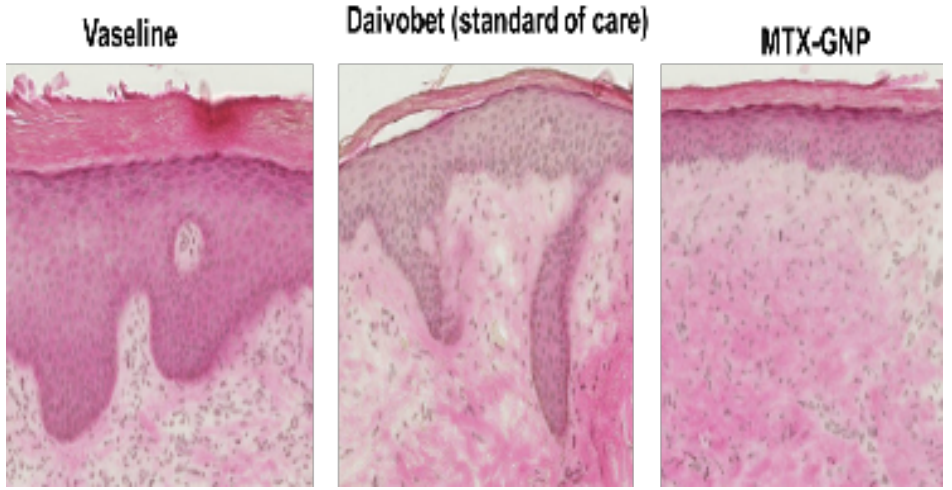
Breakthrough data (world's first) indicate protein loading up to 15% w/w with it retaining functional integrity throughout encapsulation and release, as demonstrated in an in vitro antigen binding assay

MidaCore™

Working at the nanoscale

MidaCore: MTX114 GNP normalises skin in psoriasis model





- Skin thickening significantly reduced with MTX114-GNP – significantly greater effect than Daivobet (calcipotriol/betamethasone dipropionate)

Summary P&L

	1H 2021 £m	1H 2020 £m	1H 2021 vs 1H 2020 £m	1H 2021 vs 1H 2020 B/(W) %
Revenue	0.40	0.17	0.23	139%
R&D costs	2.01	3.99	1.98	50%
Distribution, selling	0.02	0.01	(0.01)	N/M
Administrative costs	1.64	2.93	1.29	44%
Impairment	-	11.59	(11.59)	N/M
Operating loss	(3.23)	(18.35)	(13.10)	82%
Net loss	(3.15)	(17.42)	(13.00)	82%

Summary Balance Sheet

	30 Jun 2021 £m	31 Dec 2020 £m
Fixed assets	1.25	0.54
Receivables, taxation	2.82	1.73
Cash	4.20	7.55
Total assets	**8.27**	**9.82**
Liabilities – long term	(0.68)	(0.11)
Liabilities – short term	(2.09)	(1.23)
Borrowings	(0.13)	(0.20)
Derivative financial liability	(1.62)	(1.56)
Total liabilities	(4.52)	(3.10)
Net assets	**3.75**	**6.72**

UK Placing raised £9.0m (net) in July 2021

All Spanish loans repaid

Cash runway into 1Q 23

Summary 1H 21 scorecard

- Costs under control, cash runway extended to 1Q 23
- Prioritising MTX110 for much larger GBM market
- Delivered 2x Proof of Concept Q-Sphera formulations to partners
- Initiated licensee search for Q-brexpiprazole
- Opened up potential of Q-Sphera platform in proteins with mAb data

Thank You

Summary cap table

	Ordinary shares		Warrants					Midatech options	DARA warrants	DARA options	FULLY DILUTED	
			Feb 2019	Oct 2019	May 2020	May 2020	May 2020					
CMS, A&B	10,389,610	10.5%	10,389,610								20,779,220	15.5%
Lombard Odier	7,536,559	7.7%									7,536,559	5.6%
All others	45,454,498	46.2%	5,302,666	3,150,000	6,590,910	147,731	6,999,999	1,482,978	4,624	2,385	69,135,791	51.4%
Placing, Jul 2021	35,087,720	35.6%									35,087,720	26.1%
Grant, Jul 2021								1,924,000			1,924,000	1.4%
TOTAL	98,468,387	100.0%	15,692,276	3,150,000	6,590,910	147,731	6,999,999	3,406,978	4,624	2,385	134,463,290	100.0%
WAV Ex. price			£10.00	$1.25	$0.41	$0.4125	£0.34	£0.392	$110.51	$95.17		