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Quotient Sciences

Molecule to cure. Fast.™

Information sheet

Preclinical Technology Screening

Tackling the preclinical exposure challenge

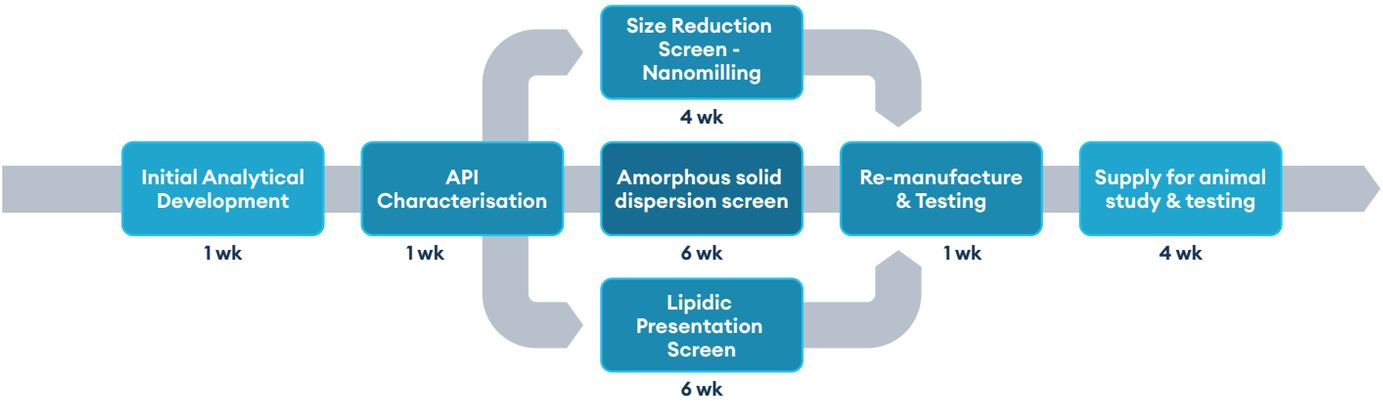
Drug solubility and bioavailability challenges are omnipresent in the pharmaceutical industry today, with over 80% of new drugs classified as poorly soluble relative to human dose requirements. Even before entering clinical evaluation stages, new therapeutics must overcome higher solubility hurdles required for concomitant non-GLP PK and initial dose range finding (DRF) studies where a linear dose-exposure relationship is required to justify further development effort and financial expenditure.

Exposure from these new drugs often plateaus long before the anticipated high dose toxicology value is reached, limiting the potential scope that can be explored in preclinical maximum tolerated dose (MTD) studies. This can result in both delays in GLP study design and execution and potential subsequent adverse impacts on human dosing strategy. Furthermore, this issue can further impact entry into first in human studies with a suitably supportive regulatory package that can justify the proposed dose exposure cap.

Compliance with ICH M3R2 guidance on the fifty-fold anticipated therapeutic dose multiplier for MTD studies often means these poorly soluble new small molecules are stalled or stopped altogether, even though the mechanism of action may be comprehensively established and there be overwhelming unmet clinical, medical, and commercial demands.

30+ years of experience to help you evolve your toxicology formulation into a fit-for-purpose clinical formulation, development, and testing plan.

Preclinical Technology Screening – Accelerating your program



Preclinical Technology Screening

Technology screen expertise to overcome the toxicology exposure hurdle

Quotient Sciences offers a comprehensive preclinical technology screening service to overcome this plateau effect. We work with you to understand the physicochemical properties of the molecule and the intended route of administration and, with a parallel screening approach, identify enabling technology platforms which may help achieve improved bioavailability.

This includes assessment of size reduction, lipidic-based systems, and amorphous solid dispersions to boost exposure through either improvement in dissolution rate or presentation of the API in a molecular dispersed, kinetically stable state more amenable to in-vivo adsorption.

An accelerated path for preclinical technology screening

Utilizing Quotient Sciences technology screening service, three platforms can be evaluated in less than 8 weeks, with the generation of fit-for-purpose formulations for dosing in animal non-GLP PK studies over the subsequent 3-4 weeks. A pathway into full DRF studies can be achieved in just three months, ensuring subsequent entry into MTD assessments. This streamlined approach can help justify investment into pivotal GLP tox studies and accelerate entry into first-in-human (FIH) trials.

With over 30 years of experience, we can help you assess how to evolve the toxicology formulation into a fit-for-purpose clinical formulation and ensure a robust clinical development and testing plan. This includes evaluating different technologies side-by-side in the clinic to better understand human exposure using our Translational Pharmaceutics® Platform and adaptive dosing methodology.

Key Features

- Capability to perform the screen with 5g of API or less
- Ability to work with molecules with OEL <1 micro/m3
- Undertake ASD preparation using film casting, spray drying or hot melt extrusion processes
- Ability to assess the full range of LCFS I-IV lipidic systems
- Solid state and physical stability established (ca. 1 month) to justify enabling technology candidate selections, using a range of sophisticated analytical techniques
- Biorelevant characterization dissolution techniques used to help identify lead formulation candidates
- Prepare formulations suitable for preclinical PK studies with guidance notes on reconstitution requirements for oral gavage at the sponsor's preclinical toxicology facility
- Supply enabling formulations at larger scales for subsequent GLP tox studies*

As a full service CRO and CDMO, we can also support your molecule following preclinical stages–to first in human trials and beyond. Contact us today to learn more about how we can help your next program.

*Using third party strategic partners

Alnwick › Edinburgh › Miami › Nottingham › Philadelphia › Reading

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