

### SPECIAL REPORT

# A US Cell Therapy Regulatory Toolkit

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The successful translation of cell and gene therapies into the clinic requires careful navigation of the regulatory pathways during product development and commercialization. The US Cell Therapy Regulatory Toolkit has been developed to inform users of a number of those pathways, and is accessible free of charge at [www.lrmn.com/regs.html](http://www.lrmn.com/regs.html). The site is built around a standard clinical trial pathway from the research stage through to commercialization, with further detail set out in three main sections as applicable to the specific stage of development: Steps to Product, Manufacturing, and Expedited Programs. Supporting information is contained within the 'Find out more...' options displayed across the pages, and there are a variety of links to other websites detailed which direct the user towards useful FDA Guidance for Industry documents, website pages, and publications.

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### STEPS TO PRODUCT

The first section covers the various meetings required by FDA in preparation for an investigational new drug (IND) application, including what those meetings will entail, specific details on timings and

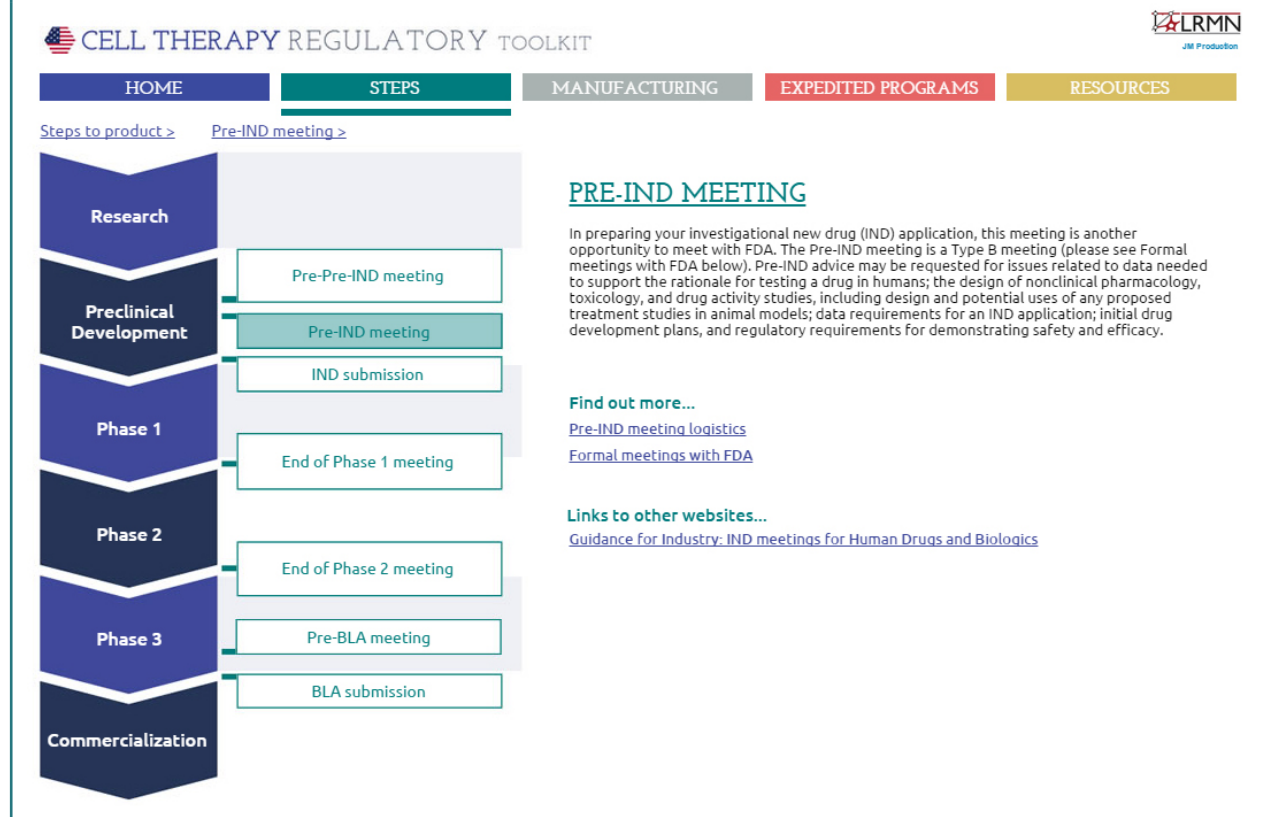
logistics, and briefing document requirements (**Figure 1**). Information on the IND application itself and how the content is normally organised is also covered, and users can complete a simple questionnaire in order to determine how FDA will

categorize their product (note the final 'Resources' section in the toolkit briefly details the specific Code of Federal Regulations [CFR] that apply to the IND application process.) There are also descriptions of the meetings that occur with FDA



## ► FIGURE 1

The 'Steps to Product' section within the US Cell Therapy Regulatory Toolkit, which covers the meetings required by FDA in preparation for an investigational new drug (IND) application.



when Phase I and Phase II trials are completed, and details on the process for submitting a Biologic License Application (BLA), including a timeline for all the activities that occur during the BLA process.

### MANUFACTURING

The second section looks at the manufacturing requirements for each stage of product development from preclinical development up to commercialization (Figure 2). It includes information on the timeline about when finalized potency assays are required, as well as the timeline for when compliance with current Good Manufacturing Practice (cGMP) is necessary. Ensuring these elements are in place by the correct timepoints minimizes

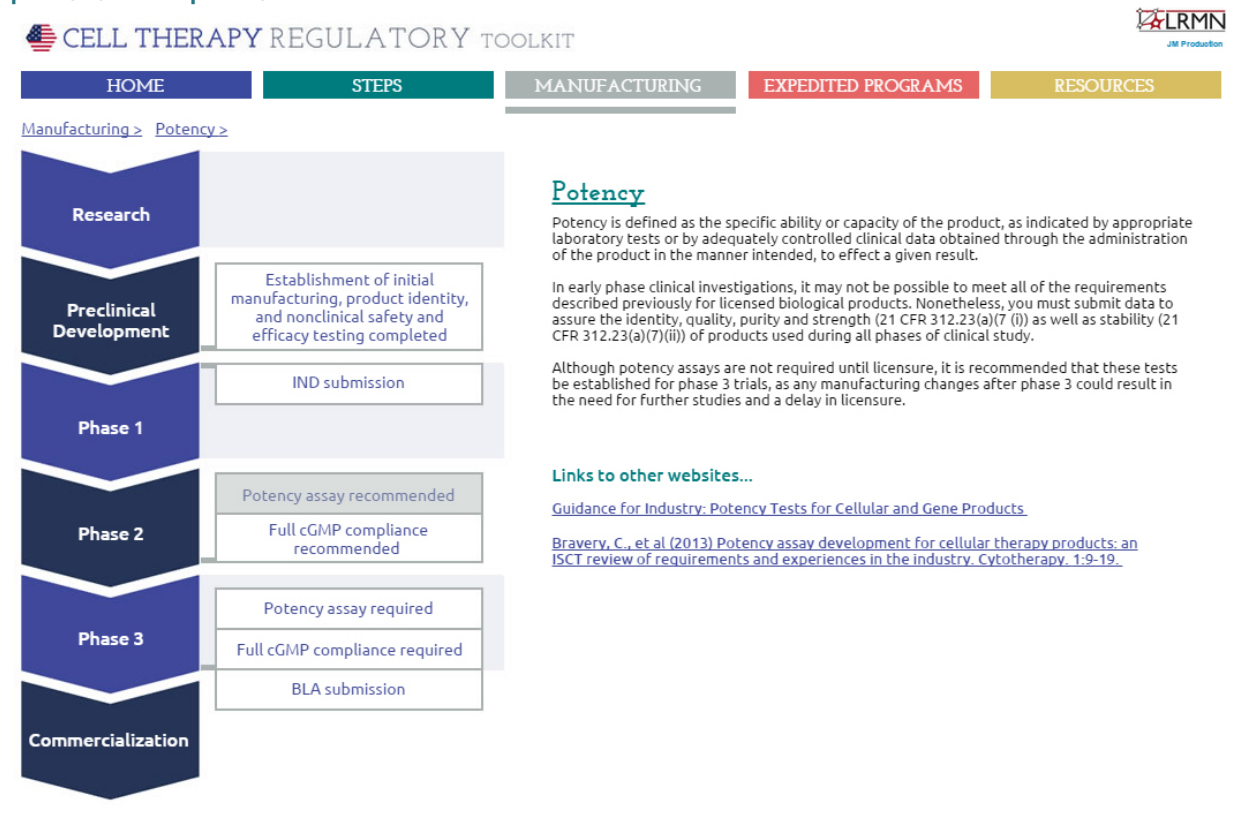
unnecessary delays in achieving the official approval to proceed with commercializing the product.

### EXPEDITED PROGRAMS

The third section details the various expedited programs available to those developing cell therapies in the US (Figure 3). Fast Track Designation, Breakthrough Therapy Designation, Orphan Status, Humanitarian Use Device Designation, and Accelerated Approval can be requested at any time during the development cycle. Special Protocol Assessment is usually requested at the end of Phase II clinical trials, whilst Priority Review Designation is requested when the BLA is filed. For each program, information is included that covers qualifying

► **FIGURE 2**

The 'Manufacturing' section, which covers the manufacturing-related requirements for each stage of product development.



criteria for the product to fit the specific program, when to submit the request for accessing the program, and the timelines for FDA response. The corresponding benefits that ensue from joining the program are also listed. For example, the developers of products that are able to acquire Orphan Status may take advantage of a number of benefits, including 7 years of market exclusivity, certain tax credits, and the waiving of certain fees.

## CONCLUSION

The information contained within the US Cell Therapy Regulatory Toolkit provides accessible regulatory education to users about specific requirements they can expect during product and clinical development in

the USA. Users are welcome to navigate the pages, and use it as a starting point in seeking to understand the regulatory pathway for taking cell therapies into the clinic.

## Endnote

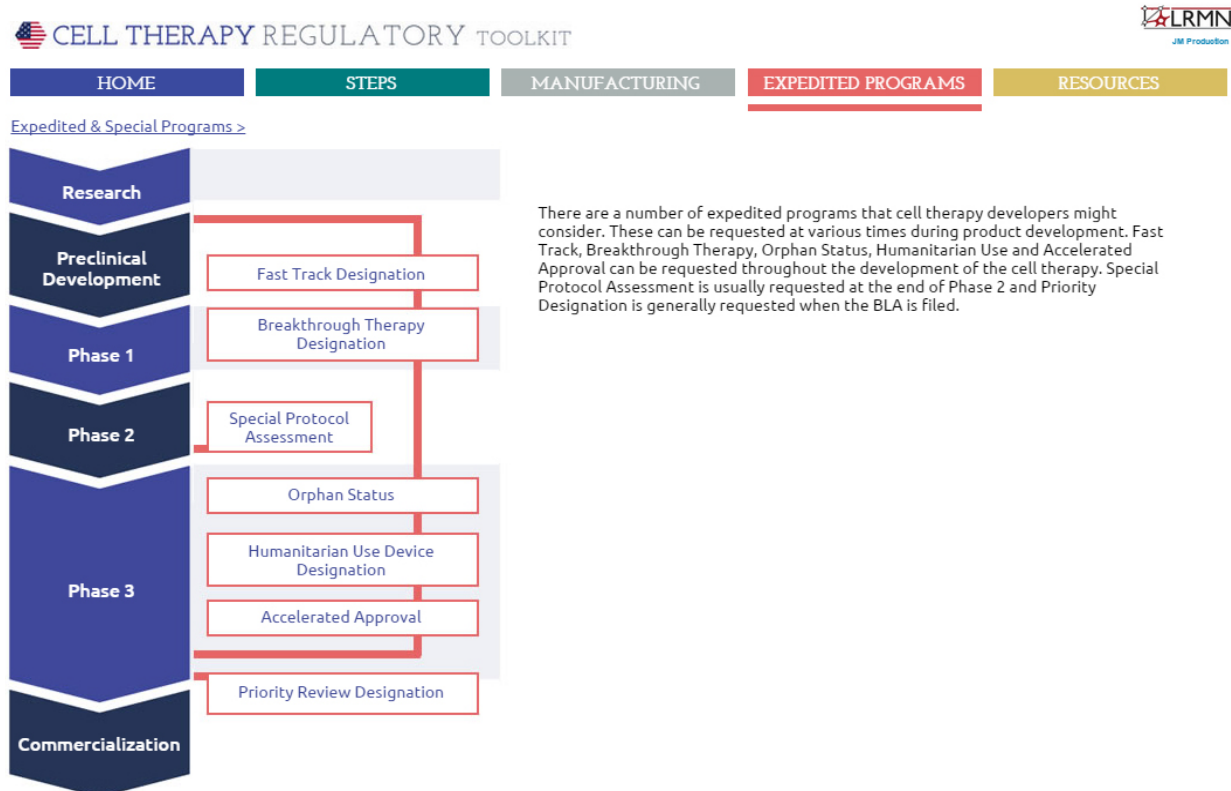
The toolkit was constructed using information available in 2014. It is inevitable that regulatory requirements will change over time, and looking ahead, users should therefore, check whether there have been any subsequent changes introduced by the relevant regulatory bodies.

## ACKNOWLEDGEMENTS

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► **FIGURE 3**

The 'Expedited Programs' section, which details the various alternative regulatory pathways available to those developing cell therapies in the USA.



## FINANCIAL & COMPETING INTERESTS DISCLOSURE

The Cell Therapy Regulatory Toolkit was developed within the British Regenerative Industry Tool Set (BRITS) project (2010–2014) funded by Innovate UK (then the Technology Strategy Board) under their Regenerative Medicine Program: Value Systems and Business Modelling. C Mason was the Principle Investigator and EJ Culme-Seymour was an investigator on the project.

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