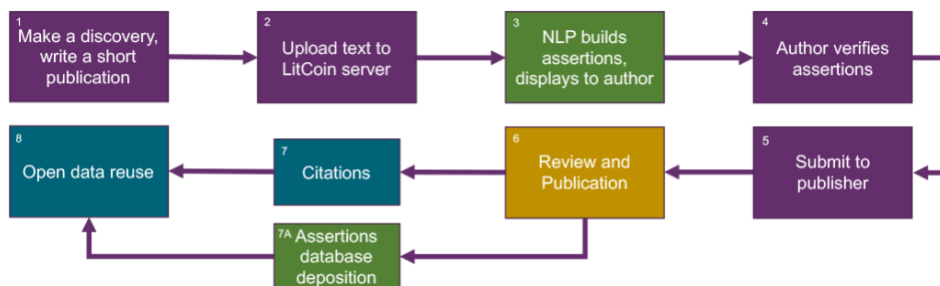# LITC●IN

Changing the Currency of Scientific Research

Stakeholder Feedback Virtual Workshop

June 17th-18th, 2021

Efficiency in translational research is increased when knowledge that links the human phenotype/condition with the underlying molecular mechanisms and cellular processes that lead to the phenotype/condition is more complete. More complete knowledge would likely also lead to a better understanding and even more accurate prediction of side effects that a drug might cause. This would help redirect development at a very early point in the development trajectory, saving precious time and money for other projects. At the same time, if a researcher is paying close attention as they test their hypothesis, there are many "microdiscoveries" that are reproducibly observed but will never make it into a publication because (although persistent and reproducible) they do not fall neatly into the narrative of the publication the researcher is working toward. Therefore, NCATS is soliciting feedback on the potential development, demonstration, and dissemination of a platform which we've termed "LitCoin", which will help to fill knowledge gaps that hinder efficient translation while providing researchers with an incentive to share data by providing a way to attribute credit by the means most familiar to them – literature publication.

LitCoin is envisioned as a brand-new type of primary scientific publication that is short and includes at least one data figure. Importantly, the submission will be accompanied by a set of concept assertions with biological context where possible (isopropyl alcohol *treats* nausea [in mice], for example) generated by natural language processing (NLP) and verified by the author and reviewers. These assertions can subsequently be used by data scientists and other researchers to make new connections leading to new discoveries. The general concept of a LitCoin submission is laid out in Figure 1, below.

Figure 1: LitCoin submission process. Researchers will have the ability to upload their potential manuscript to the LitCoin server (1-2), where an NLP

algorithm will analyze the text and create assertions between identified concepts (3). These assertions will be displayed to the researcher along with novelty scores based on previous publications that included similar assertions, and the researcher will have the opportunity to edit the assertions and then confirm that they are accurate (4). The article will then be formatted for

submission to the participating journal of the researcher's choice, and the researcher can submit the article for publication (5). The journal would include a review of the concept assertions as part of their review process for this article type, with reviewers having the ability to provide concurrence (or not) for each assertion. Accepted submissions would then be published and cited by other researchers as normal (6-7). Assertions will also be stored in a knowledge graph database and made available to researchers (7A). After publication, each assertion that was generated will be linked to the published article, allowing researchers making use of that data to instantly find the provenance associated with it and driving users to the publishers' websites.

LitCoin Stakeholder Feedback Workshop

NCATS is planning to hold a virtual workshop on this concept to garner feedback from stakeholders at all levels on June 17th and 18th, 2021. Discussions during this workshop will be key in shaping NCATS' approach to making LitCoin a reality moving forward.

We will be hosting several panel discussions during this workshop, including:
- Publishing "Snippets and Bummers"
- Open Data Deposition – Carrot or Stick?
- Credit Where Credit is Due
- Current State of NLP in Biomedical Research
- Data Reuse in Biomedical Research

The workshop will be held using a webinar format, with panel discussions presented as the main content, and will include multiple ways for non-panelist attendees to participate in the conversation including a chat box through the Zoom platform, as well as a collaboration platform called Mural (mural.co). A tentative agenda for the workshop can be found here.

If you are interested in attending this workshop, please use this registration form: https://forms.gle/bfSJZrzw8XhVEzKj6. Note that your email will be collected in order to send you Zoom Webinar and Mural links to participate in the workshop.

If you have other questions about Litcoin, feel free to email Tyler Beck at tyler.beck@nih.gov for more information.