Lightweight sample labeling, barcoding and tracking systems for the academic laboratory

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Source Code: https://github.com/dimitras/collos
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Abstract:
In the typical lab many bench investigators will come and go over the years and labs will accumulate a large collection of samples. Traditionally in most laboratories sample labeling and tracking of these samples is a problem that is left up to the individual bench investigators and it often amounts to no more than a few handwritten cryptic indications on the side of a tube and some notes in a notebook, or at best in an Excel spreadsheet. When people leave labs it can become very difficult for those remaining to pick up the pieces of their research, often because of an idiosyncratic and confusing documentation of their samples. The value of overcoming this problem is therefore enormous. However achieving a more sophisticated system, with barcoding and full sample tracking, has traditionally been too expensive for all but the most highly funded labs because of the significant overhead and expert systems support required. To overcome this limitation, we have developed a lightweight system called CollOS (**Coll**ection **O**f **S**amples), together with detailed documentation that will allow any lab to achieve relatively sophisticated sample labeling and tracking without excessive overhead. In particular we give specific guidance on hardware and software setup which reflects our experience testing numerous labels under harsh conditions. The entire system can be installed for under $5000. This is not a commercial endorsement and we have no commercial interest in the recommended hardware it is simply an unbiased review.