Campus Core Research Facilities

Core Research Facilities are innovative and advanced technology facilities that provide instrumentation and specialized services that are beyond the reach of individual investigators due to limitations of expertise, or financial or logistic constraints. Core research facilities are distinct from facilities that provide routine service, such as cell culture or animal care.

A *Campus Core Research Facility (CCRF)* provides instrumentation and specialized services that benefit a broad segment of the UCSF research community, and are available to the whole community. Modern biomedical and translational research increasingly demand that institutions create and maintain CCRFs. To do so successfully, the institution must:

- create centralized governance and decision-making mechanisms for evaluating, designating or disestablishing CCRFs, and for strategic planning and prioritization;
- employ sound business practices that ensure that services are delivered in an economically feasible and responsible manner;
- continuously acquire or create new instrumentation or methodological capabilities that keep the CCRFs at the leading edge of technological capability.

A problematic current situation

The demand for core services in the absence of centralized coordination has driven the development of redundant facilities in various UCSF venues, in departments, ORUs and programs, and in clusters of two or more individual labs. Such operations may have insufficient user base, or they may compete; many operate in deficit because user fees fail to match costs, or because poor administrative practices lead to incomplete collection of user fees.

Absence of central oversight compromises quality and needs assessments, rational decisions to expand or downsize, or to create or support a new facility.

Facilities lack the resources to create or update instruments, or for staff to develop new technological capabilities that benefit researchers.

Elements and features of a proposed solution

1) A CCRF Director would be appointed to oversee business and operations administration of all CCRFs, coordinate and facilitate the acquisition of campus or extramural resources for CCRFs, and receive and manage requests for additional resources.

2) A CCRF Steering Committee would be appointed, comprised of faculty experts in various technology areas and chaired by the Director, to do long term planning, assess the quality and costs of services provided by CCRF’s, determine the need and demand
for new services that could potentially rise to CCRF status, and terminate CCRFs that are no longer justified scientifically or economically sound.

3) CCRFs would be designated by the Steering Committee. It is anticipated that the requirement for broad campus relevance (as well as space and funding constraints) will limit the total number of CCRFs to perhaps a half dozen. Likely examples include: Genomics, Mass Spec/Proteomics, Biostatistical Analysis, Imaging, Flow Cytometry, Transgenic/Targeted Mutagenesis. Each CCRF would encompass a range of specialized services; e.g., the Campus Genomics Core Facility offers DNA sequencing, SNP analysis, expressions arrays, array CGH, quantitative PCR.

4) In many cases, CCRFs would be assembled by consolidation, coordination and reorganization of multiple existing cores, eliminating redundancies and enabling economies of scale to create more favorable business models.

5) A centralized, web-based business management system would facilitate oversight and financial management of daily operations, as well as tracking and scheduling of services for users and providers. This system will enable timely collection of recharge income and improve overall financial management.

6) The costs of ongoing operations of CCRFs would be covered by recharge income. Subsidies from extramural sources may reduce rates charged to some or all investigators. In general, newly established CCRFs would be expected to break even within three years of operation.

7) A modest level of institutional support would be required for capital equipment acquisition, for updating instrumentation, and to allow professional core staff to develop new service capabilities, to establish expertise on new instruments, to discover novel technological approaches, and to educate users. Some but not all instrumentation costs would be recovered by depreciation.

Example: Genomics – benefits accruing from the first CCRF

- Consolidated administration and services across existing facilities at Parnassus, Mission Bay, Cancer Center, Gladstone, Gallo and LBNL; nine positions were eliminated, saving $490,000.
- Elimination of service redundancies released space and funds to establish new genomic capabilities (methylation, low-end genotyping).
- Campus experts in genomic technologies were brought together to enhance services and education.
- Reduction of equipment redundancies allowed increase in services offered and reduction in user costs.
• Will allow coordinated financial management of interrelated services, and expanded authority from the Budget Office to allow rate adjustments that better reflect actual use.
• Campuswide coordination will reduce redundant requests for support, and assure that each request is backed by a broad campus constituency.

Budget justification

See attached three-year funding model summarizing institutional support needs for a CCRF administrative component, and for three CCRFs:

- Year 1 $1.6 million
- Year 2 $1.4 million
- Year 3 $1.2 million

With time and experience, and success operation of the first three CCRFs, the Steering Committee may seek to launch perhaps three additional CCRFs during this period. Institutional funding needs for CCRFs that have not yet been selected for establishment can be approximated only crudely, but might reach an additional $1-1.5 million per year.

CCRF Administration
- One–time cost of $300,000 would expand and enhance current Cancer Center web-based core facility administrative database.

Mass Spectrometry
- Operating manager and co-manager are in place;
- SRA III will facilitate full function of the Parnassus site; costs for this position will be fully recovered from recharges by Year 3;
- SRA III to bring the Mission Bay site to full functional capability; costs for this position will be fully recovered from recharges by Year 3;
- the $35,000 service contract is for an instrument that provides a new service;
- $75,000 for protected staff time to enable new technology development.

Genomics
- $125,000 for protected staff time to enable new technology development; more than mass spectrometry because there are more instruments and services within this technology field.

Biostatistical Analysis
- Two senior statisticians (serving the Mass Spectrometry and Genomics CCRFs) will report to a faculty director in biostatistics. Support for these positions will be fully recovered from recharges after year 3. Support for the faculty director will continue after year 3. The scope of this CCRF is likely to expand to serve other CCRFs and coordinate with CTSI.