

## **Solanaceae Coordinated Project meeting**

**July 25<sup>th</sup>, Madison Wisconsin**

**David, Douches, Allen Van Deynze, David Francis Walter DeJong**

The goal of this meeting was to solidify and refine the goals of the SOLCAP, assign specific tasks for the goals, identify labs for core centers and refine scientific and stakeholder boards. The SOLCAP is a community based grant of \$5 M over 4 years focusing on translational genomics. The objectives are to develop core capabilities and service labs focusing on carbohydrate metabolism, Vitamin C and antioxidants, germplasm panels for each of tomato, pepper and potato, genotyping tools, phenotyping labs, data management and display, and outreach. A small grants component was also added to encourage programs to access the tools.

The organization of the SOLCAP was discussed with a Stakeholder Board consisting of breeders/processors in the 3 crops from industry and public; a Scientific Advisory Board consisting of leading scientists and technical personnel; the director, Dr. David Douches; Executive committee (Douches, Van Deynze DeJong, Shanna Moore and Francis). Subcommittees for each of the goals report to the Executive. It was pointed out that is crucial that we define our target audience for measurable goals and appropriate metrics for each deliverable on an annual basis. These need to be breeder driven. The basis of the SOLCAP is to leverage and enhance current infrastructures to meet its goals. A 2-page letter of intent will be due in November. Based on this, full proposals will be invited in Feb.

***Germplasm:*** (Francis, Jansky, Moore) A panel of 480 relevant breeding lines to the United States and sources of germplasm/mapping parents will be selected for each of the 3 crops. The germplasm subcommittee, lead by Shelly Jansky has already met on this topic. David Francis has been working with Steve Tanksley to choose and complement a subset of lines represented in the EU SOL project in tomato. Work in pepper will be lead by Shanna Moore.

***Genotyping.*** (Francis, Lorenzen, Van Deynze) As starch and sugars have been identified (based on a roundtable discussion in Davis, Nov, 2005) as the key traits that are important to potato, pepper and tomato, the SOLCAP will focus on sequencing genes associated with carbohydrate metabolism and Vitamin C, on subset of the germplasm panels. Loci will be selected based on candidate gene analysis from the literature and a bioinformatics analysis of the current genomic sequence lead by Robin Buell at TIGR. Two core genotyping facilities will be enhanced from existing labs to genotype the germplasm and service breeding programs. Dr. Jim Lorenzen (U. Idaho) agreed to work with fragment analysis genotyping and David Francis offered to leverage the Luminex, liquid array technology being developed for soybean at Ohio State U. for SNP analysis. UC Davis could also be leveraged for Illumina SNP assays if required.

***Phenotyping.*** (DeJong, others?). One to three core facilities will be leveraged to measure starches and sugar quantity and quality, as well as Vitamin C and antioxidants. Joe Sowokinos' lab, U of Minnesota is currently measuring starch in potato and is supported by local potato association. He will consider measuring tomato, pepper and potato samples for complex carbohydrates based if supported. Joe will respond to the committee after consulting with management. Walter De Jong (Cornell) will also consider a carbohydrate lab. Jim Giovannoni

(Boyce Thompson Institute) has been approached to service samples for Vitamin C and antioxidants. Alternatively, John Labavitch, (UC Davis) will consider supporting samples.

**Data management.** (Buell). A website for SOLCAP will be supported to leverage the genomics and web tools built at TIGR and tomatomap.net to access genomic, genotype and phenotype data for breeders. By centralizing phenotypic and genotypic data, formats will be standardized and transferable across projects. Tools will leverage the infrastructure for the Rice CAP supported by TIGR; they will be breeder driven and linked to SGN. SOLCAP will follow a “reuse and recycle” model and link and translate current databases under a common front rather than try to integrate all data in one database.

**Outreach.** (Van Deynze) It was pointed out that a strong and measurable outreach program is important. We will leverage courses and expertise of the UC Davis Seed Biotechnology Center. Outreach programs will be in training and display of SOLCAP resources at Potato Association of America, Tomato Round Table, International Pepper Meetings (US) and breeder oriented meetings. It will also incorporate websites, surveys etc.

**Small grants.** (Francis, others?) A small grants component to be used as seed money was discussed. The infrastructure at Ohio State could be leveraged. A rotating panel of reviewers was suggested. Discussion focused on whether these grants should focus on research specifically on carbohydrates and Vitamin C or offer funds to incorporate additional traits.

**Action items:** The committee will define deliverables, timelines and confirm assignments for core labs and responsibilities.