

## BIC Genetics Committee Meeting Minutes

**Location:** Hybrid (in-person and zoom) meeting hosted by Carlos Urrea (U. of Nebraska, Scottsbluff)

**Date:** Monday, August 22, 2022, 2:45 – 3:15pm MST

**Committee Members:** Bett, Ferreira, Gepts, Goncalves-Vidigal, Hoyos-Villegas, Kalavacharla, McClean, Miklas (Chair), Osorno, Porch, and Urrea.

### Present:

In person: Gomez, Osorno, Porch (Acting Secretary), Urrea

Zoom: Ferreira, Gepts, Goncalves-Vidigal, Hoyos-Villegas, Miklas (Chair), Pastor-Corrales, Parker

### A. Old Business:

1. The Genetics Committee 2021 meeting minutes were approved by email and published in the 2022 BIC v65.
2. The new table of SNPs and INDELS (converted to Tm-shift assays) published on the BIC website (11/03/21) replaces the old SCAR Table (reviewed by Alvaro Soler-Garzón et al., BIC 2022 v65:95-96).
  - a. There are a total of 42 SNP/KASP markers in the table. This is a collaborative and interactive effort so any input regarding experience with these markers would be useful and can be sent to Phil Miklas or Tim Porch. The research community is encouraged to submit additional markers.
  - b. Phil Miklas presented the list of markers. For some loci there is more than one marker listed when there is not enough evidence to indicate which is most tightly linked or which works across gene pools/races. Others have been extensively tested. For example, the *bgm-1* marker tracks the causal mutation within the candidate PvNAC1 gene. Additional markers or testing are needed for ANT, bean rust (need to include *Ur-4*, *Ur-5* KASP markers), ALS, and white mold, among others.
3. The Gene List was published in the 2022 BIC v65 with a modified preface and gene symbol updates ([http://www.bic.uprm.edu/?page\\_id=91](http://www.bic.uprm.edu/?page_id=91)).
  - a. Candidate gene (PvNAC1) information was added to the description for *bgm* (syn *bgm-1*) Soler-Garzon (2021a).
  - b. The KTR2/3 (truncated CRINKLY4 kinase) candidate gene information was not added to the description for *Co-1* cluster alleles (Richard et al. 2021) given additional investigation of this locus is pending.
  - c. Candidate gene information for *bc-4*, a new recessive gene locus that interacts with *bc-2* to condition resistance to BCMV [*bc-4* was found in host groups 4, 5, and 7], was added to the Gene List. Candidates for *bc-2* and *bc-4* include genes encoding Vps4 AAA<sup>+</sup> ATPase ESCRT proteins on Pv11 and Pv05 (Soler-Garzon, 2021b).
  - d. As genetic information is found for other genes, the gene list can be updated with a short description of candidate gene information.

4. The Committee decided to include information for different mutations within the same gene in the Bean Genes List. In these cases, use superscripts in brackets to denote different mutations for the same gene (i.e. the different mutations are not different alleles in the genetic sense). For example, **bc-2**<sup>[UI 111]</sup> denotes a 10 kb deletion of Durango origin and **bc-2**<sup>[Robust]</sup> a single SNP deletion found in navy bean landrace selection (Robust) for the gene encoding Vps4 AAA+ ATPase ESCRT on Pv11. Both mutations (frameshift) result in truncated proteins.

## **B. New business**

1. The following membership changes were approved by the committee:
  - a. Kirstin Bett and Kal Kalavacharla will rotate off the committee.
  - b. New members include Francisco Gomez, Sarah Dohle, and Judy Brown.
2. Travis Parker will send Phil Miklas updates to the Bean Gene list on genes involved in the domestication syndrome. Candidate gene information for *fin*, *ppd*, and *stringless*, etc. (Gepts BIC 2022 v65:1-10) can be added.
3. Published articles are often not following the Genetics Committee naming protocols or having gene symbols reviewed by the Committee. This is occurring partly because researchers who are not participating in the BIC are publishing on common bean and not reviewing the literature.
  - a. At the next BIC meeting, participants will be encouraged to participate in the Germplasm and Genetics Committee Meetings and reminded about the naming protocols.

**Finish: 3:14pm**