Raising or lowering the amont of 2-4D in the media is without gross effect except at the null level. Without 2-4D a large number of cultures have been observed to generate small organized roots.

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3. Gene expression in root tissue cultures.

Like the endosperm callus, the root callus exhibits pigmentation. To summarize our results to date:

Genotype	Callus Phenotype
W22 A C R^r b pl df	Red
W22 A C R^r b pl Df_{cl}*	Colorless
W22 A C R^{ch} B Pl	Dark purple
W23 A C R^{sc} p^{WR}	Colorless
W23 A c r^g p^{RR}	Colorless
W23 A C R^{ch}	Purple

*The state of the Diffuse allele here used is a very stable and strong pigment inhibitor.

Each of these callus phenotypes corresponds to what is seen in the organized root. Note that the red pericarp allele does not produce a detectable effect. R^r, R^{ch}, B, Pl, Df_{cl}, all known to affect root color, are similarly active in the callus.

Those cultures scored as colorless are not strictly so. All the cultures have amber color (characteristic of most plant callus). The intensity of this amber coloring increases considerably with aging.

When pigment develops it does so on a cell to cell basis. That is, a cell is either completely pigmented or not at all. The placement of these pigmented cells with respect to each other appears almost at random--given a specific area in the callus. The older the area (in terms of how long ago it stopped dividing) the higher the frequency of pigmented cells.

Pigment from all of the colored cultures diffuses out into the media, sometimes producing a dark ring of pigment surrounding the clumps of callus.

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