Photocontrol of bud burst involves gibberellin biosynthesis in Rosa sp.

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Résumé en anglais	Light is a critical determinant of plant shape by controlling branching patterns and bud burst in many species. To gain insight into how light induces bud burst, we investigated whether its inductive effect in rose was related to gibberellin (GA) biosynthesis. In axillary buds of beheaded plants subject to light, the expression of two GA biosynthesis genes (RoGA20ox and RoGA3ox) was promptly and strongly induced, while that of a GA-catabolism genes (RoGA2ox) was reduced. By contrast, lower expression levels of these two GA biosynthesis genes were found in darkness, and correlated with a total inhibition of bud burst. This effect was dependent on both light intensity and quality. In in vitro cultured buds, the inductive effect of light on the growth of preformed leaves and SAM organogenic activity was inhibited by ancymidol and paclobutrazol, two effectors of GA biosynthesis. This effect was concentration-dependent, and negated by GA3. However, GA3 alone could not rescue bud burst in the dark. GA biosynthesis was also required for the expression and activity of a vacuolar invertase, and therefore for light-induced sugar metabolism within buds. These findings are evidence that GA biosynthesis contributes to the light effect on bud burst and lay the foundations of a better understanding of its exact role in plant branching.
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