

DISTRIBUTION OF CYTOKININS AND AUXIN IN THE CONIFER CROWN

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Long seasonal growth interruptions with the formation of buds are inherent in the woody life form. Both auxin and cytokinins influence axillary meristem initiation, outgrowth and interactions between meristems; a rapidly growing body of molecular evidence supports this classical notion. However, hypotheses based on annuals, seedlings, or tissue cultures are challenged when applied to branching patterns of trees. E.g., models that imply continuing signaling between top and root system appear inadequate in a tall tree. Vegetative buds in conifer trees are mainly preformed, and growth potential and time of release highly predictable according to position. Buds with comparable position and fate may be destructively analyzed over a range of time and treatments. Buds contain high concentrations of auxin and cytokinins in a pattern roughly consistent with their position and role. Distribution of iP, iPR, and iPR-mP suggests that cytokinins are synthesized in needles, buds and shoots, roots being only periodically important. Recent and new results will be reviewed in light of apical control and dominance phenomena.