

Table S1 Summary of publications in plant research utilizing single-cell and spatial transcriptome techniques.

Plant Type	Species	Tissue	Research Method	Library construction platform	Publication year	Author^[Ref.]
Model plant	<i>Arabidopsis thaliana</i>	inflorescence meristems	spatial RNA-seq	not mentioned	2017	Giacomello et al. ^[1]
Model plant	<i>Arabidopsis thaliana</i>	root tips	scRNA-seq	10x Genomics	2019	Ryu et al. ^[2]
Model plant	<i>Arabidopsis thaliana</i>	root tips	scRNA-seq	10x Genomics	2019	Zhang et al. ^[3]
Model plant	<i>Arabidopsis thaliana</i>	root tips	scRNA-seq	10x Genomics	2019	Denyer et al. ^[4]
Model plant	<i>Arabidopsis thaliana</i>	roots	scRNA-seq	Drop-seq	2019	Shulse et al. ^[5]
Model plant	<i>Arabidopsis thaliana</i>	whole roots	scRNA-seq	10x Genomics	2019	Jean-Baptiste et al. ^[6]
Model plant	<i>Arabidopsis thaliana</i>	sperms	scRNA-seq	Smart-seq2	2019	Misra et al. ^[7]
Model plant	<i>Arabidopsis thaliana</i>	cotyledons	scRNA-seq	10x Genomics	2020	Liu et al. ^[8]
Model plant	<i>Arabidopsis thaliana</i>	ovules	scRNA-seq	Smart-seq2	2020	Song et al. ^[9]
Model plant	<i>Arabidopsis thaliana</i>	root apical meristems	scRNA-seq	10x Genomics	2020	Wendrich et al. ^[10]
Model plant	<i>Arabidopsis thaliana</i>	shoot apices	scRNA-seq	10x Genomics	2021	Zhang et al. ^[11]
Model plant	<i>Arabidopsis thaliana</i>	leaves	scRNA-seq	10x Genomics	2021	Kim et al. ^[12]
Model plant	<i>Arabidopsis thaliana</i>	aerial tissue; first true leaves	scRNA-seq	10x Genomics; Smart-seq2	2021	Lopez-Anido et al. ^[13]
Model plant	<i>Arabidopsis thaliana</i>	seeds	snRNA-seq	Smart-seq2	2021	Picard et al. ^[14]
Model plant	<i>Arabidopsis thaliana</i>	roots	scRNA-seq	10x Genomics	2021	Gala et al. ^[15]
Model plant	<i>Arabidopsis thaliana</i>	root tips	scRNA-seq	Smart-seq	2021	Roszak et al. ^[16]
Model plant	<i>Arabidopsis thaliana</i>	primary seedling roots	scRNA-seq	10x Genomics	2021	Graeff et al. ^[17]
Model plant	<i>Arabidopsis thaliana</i>	root tips	scRNA-seq	10x Genomics	2021	Yang et al. ^[18]
Model plant	<i>Arabidopsis thaliana</i>	ovule primordia	scRNA-seq	10x Genomics	2021	Hou et al. ^[19]
Model plant	<i>Arabidopsis thaliana</i>	whole roots	scRNA-seq; scATAC-seq	10x Genomics	2021	Dorrity et al. ^[20]
Model plant	<i>Arabidopsis thaliana</i>	seedlings; inflorescences	snRNA-seq	SMARTer ICELL8	2021	Sunaga-Franze et

						al. ^[21]
Model plant	<i>Arabidopsis thaliana</i>	floral meristems	snRNA-seq	10x Genomics	2022	Neumann et al. ^[22]
Model plant	<i>Arabidopsis thaliana</i>	all above-ground tissues	scRNA-seq	Drop-seq	2022	Apelt et al. ^[23]
Model plant	<i>Arabidopsis thaliana</i>	leaves	spatial RNA-seq	Stereo-seq	2022	Xia et al. ^[24]
Model plant	<i>Arabidopsis thaliana</i>	root tips	scRNA-seq	10x Genomics	2022	Shahan et al. ^[25]
Model plant	<i>Arabidopsis thaliana</i>	cotyledons	scRNA-seq	10x Genomics	2022	Liu et al. ^[26]
Model plant	<i>Arabidopsis thaliana</i>	leaves	scRNA-seq	10x Genomics	2022	Tenorio Berrío et al. ^[27]
Model plant	<i>Arabidopsis thaliana</i>	leaves infected with <i>Colletotrichum higginsianum</i>	scRNA-seq	10x Genomics	2023	Tang et al. ^[28]
Model plant	<i>Arabidopsis thaliana</i>	root explants	scRNA-seq	DNBelab C4	2024	Yin et al. ^[29]
Model plant	<i>Arabidopsis thaliana</i>	root tips under osmotic stress	scRNA-seq; scATAC-seq	10x Genomics	2024	Liu et al. ^[30]
Model plant	<i>Arabidopsis thaliana</i>	whole roots	scRNA-seq	Drop-seq	2019	Turco et al. ^[31]
Model plant	<i>Arabidopsis thaliana</i>	root tips	scRNA-seq	10x Genomics	2022	Otero et al. ^[32]
Model plant	<i>Arabidopsis thaliana</i>	calli	scRNA-seq	BD Rhapsody	2021	Zhai and Xu ^[33]
Model plant	<i>Arabidopsis thaliana</i>	roots removing tips	scRNA-seq	Smart-seq2	2021	Serrano-Ron et al. ^[34]
Model plant	<i>Arabidopsis thaliana</i>	roots	snRNA-seq; snATAC-seq	10x Genomics	2021	Farmer et al. ^[35]
Model plant	<i>Arabidopsis thaliana</i>	hypocotyl explants	scRNA-seq	Quartz-Seq2	2023	Ogura et al. ^[36]
Model plant	<i>Arabidopsis thaliana</i>	roots infected with <i>Phtheirospermum japonicum</i>	snRNA-seq	VASA-seq	2025	Cui et al. ^[37]
Model plant	<i>Arabidopsis thaliana</i>	roots	scRNA-seq	10x Genomics	2025	Lyu et al. ^[38]
Model plant	<i>Arabidopsis thaliana</i>	abscission zone of	scRNA-seq	10x Genomics	2025	Wen et al. ^[39]

		flower receptacles				
Model plant	<i>Arabidopsis thaliana</i>	various tissues	snRNA-seq; spatial RNA-seq	DNBelab C; Stereo-seq	2025	Guo et al. ^[40]
Model plant	<i>Arabidopsis thaliana</i>	roots	scRNA-seq	10x Genomics	2025	Vukašinović et al. ^[41]
Model plant	<i>Arabidopsis thaliana</i>	seedlings	snRNA-seq	10x Genomics	2025	Qin et al. ^[42]
Model plant	<i>Lotus japonicus</i>	root tips	scRNA-seq	10x Genomics	2023	Sun et al. ^[43]
Model plant	<i>Lotus japonicus</i>	root nodules	spatial RNA-seq	Stereo-seq	2024	Ye et al. ^[44]
Model plant	<i>Marchantia polymorpha</i>	dormant gemmae; developing thalli	scRNA-seq	10x Genomics	2023	Wang et al. ^[45]
Model plant	<i>Medicago truncatula</i>	roots inoculated with <i>Rhizophagus irregularis</i>	snRNA-seq; spatial RNA-seq	10x Genomics; 10x Visium	2024	Serrano et al. ^[46]
Model plant	<i>Medicago truncatula</i>	nodules	scRNA-seq	10x Genomics	2022	Ye et al. ^[47]
Model plant	<i>Medicago truncatula</i>	roots	snRNA-seq	10x Genomics	2022	Cervantes-Pérez et al. ^[48]
Model plant	<i>Nicotiana attenuata</i>	corolla limbs; throat cups	scRNA-seq	10x Genomics	2022	Kang et al. ^[49]
Model plant	<i>Nicotiana tabacum</i>	leaves under low nitrogen condition	scRNA-seq	10x Genomics	2023	Feng et al. ^[50]
Model plant	<i>Physcomitrella patens</i>	leaves	scRNA-seq	1cell-DEG	2019	Kubo et al. ^[51]
Model plant	<i>Portulaca oleracea</i>	leaves	spatial RNA-seq	10x Visium	2022	Moreno-Villena et al. ^[52]
Food crop plant	<i>Hordeum vulgare</i>	grains	spatial RNA-seq	10x Visium	2023	Peirats-Llobet et al. ^[53]
Food crop plant	<i>Hordeum vulgare</i>	embryos under ABA	spatial RNA-seq	10x Visium	2025	Sybilska et al. ^[54]
Food crop plant	<i>Manihot esculenta</i>	leaves	scRNA-seq	10x Genomics	2023	Zang et al. ^[55]
Food crop plant	<i>Manihot esculenta</i>	tuberous roots	scRNA-seq	10x Genomics	2023	Song et al. ^[56]

Food crop plant	<i>Oryza sativa</i>	leaves	scRNA-seq	SOLiD	2017	Han et al. ^[57]
Food crop plant	<i>Oryza sativa</i>	leaves	scRNA-seq	10x Genomics	2020	Xie et al. ^[58]
Food crop plant	<i>Oryza sativa</i>	root tips of radicles	scRNA-seq	10x Genomics	2021	Zhang et al. ^[59]
Food crop plant	<i>Oryza sativa</i>	proximal shoots; root tips	scRNA-seq	10x Genomics	2021	Wang et al. ^[60]
Food crop plant	<i>Oryza sativa</i>	roots	scRNA-seq	10x Genomics	2021	Liu et al. ^[61]
Food crop plant	<i>Oryza sativa</i>	inflorescences	scRNA-seq	BD Rhapsody	2022	Zong et al. ^[62]
Food crop plant	<i>Oryza sativa</i>	pistils	snRNA-seq	10x Genomics	2023	Li et al. ^[63]
Food crop plant	<i>Oryza sativa</i>	embryos	spatial RNA-seq; scRNA-seq	Stereo-seq; BD Rhapsody	2024	Yao et al. ^[64]
Food crop plant	<i>Oryza sativa</i>	plumules	scRNA-seq	10x Genomics	2024	Zhu et al. ^[65]
Food crop plant	<i>Oryza sativa</i>	coleoptilar nodes; root tips	spatial RNA-seq	Stereo-seq	2025	Zhong et al. ^[66]
Food crop plant	<i>Oryza sativa</i>	root tips	scRNA-seq; spatial RNA-seq	10x Genomics	2025	Zhu et al. ^[67]
Food crop plant	<i>Oryza sativa</i>	leaves infected with <i>Magnaporthe oryzae</i>	snRNA-seq; spatial RNA-seq	DNBelab C; BMKMANU S1000	2025	Wang et al. ^[68]
Food crop plant	<i>Pisum sativum</i>	shoot apices under boron deficiency	scRNA-seq	10x Genomics	2024	Chen et al. ^[69]
Food crop plant	<i>Triticum aestivum</i>	root tips	snRNA-seq; snATAC-seq	10x Genomics	2023	Zhang et al. ^[70]
Food crop plant	<i>Triticum aestivum</i>	grains under heat stress	spatial RNA-seq	10x Visium	2024	Wang et al. ^[71]
Food crop plant	<i>Triticum aestivum</i>	root tips	scRNA-seq	10x Genomics	2025	Du et al. ^[72]
Food crop plant	<i>Triticum aestivum</i>	grains	spatial RNA-seq	BMKMANU S1000	2025	Li et al. ^[73]
Food crop plant	<i>Zea mays</i>	anthers	scRNA-seq	CEL-seq2	2019	Nelms and Walbot ^[74]

Food crop plant	<i>Zea mays</i>	shoot apical meristems	scRNA-seq	10x Genomics; CEL-seq2	2020	Satterlee et al. ^[75]
Food crop plant	<i>Zea mays</i>	ears	scRNA-seq	10x Genomics	2021	Xu et al. ^[76]
Food crop plant	<i>Zea mays</i>	anthers	scRNA-seq	Smart-seq2	2021	Zhang et al. ^[77]
Food crop plant	<i>Zea mays</i>	roots; axillary buds	scATAC-seq; snRNA-seq	10x Genomics	2021	Marand et al. ^[78]
Food crop plant	<i>Zea mays</i>	root tips	scRNA-seq	10x Genomics	2021	Ortiz-Ramírez et al. ^[79]
Food crop plant	<i>Zea mays</i>	leaves	scRNA-seq	10x Genomics	2022	Tao et al. ^[80]
Food crop plant	<i>Zea mays</i>	ears	spatial RNA-seq	CartaNA	2022	Laureyns et al. ^[81]
Food crop plant	<i>Zea mays</i>	abaxial epidermis; leaf base	snRNA-seq	10x Genomics	2022	Sun et al. ^[82]
Food crop plant	<i>Zea mays</i>	kernels	spatial RNA-seq	10x Visium	2023	Fu et al. ^[83]
Food crop plant	<i>Zea mays</i>	roots infected with <i>Fusarium verticillioides</i>	scRNA-seq	10x Genomics	2023	Cao et al. ^[84]
Food crop plant	<i>Zea mays</i>	shoot apices	scRNA-seq	10x Genomics	2023	Satterlee et al. ^[85]
Food crop plant	<i>Zea mays</i>	ligular region	snRNA-seq	BMKMANU DG1000	2024	Wang et al. ^[86]
Food crop plant	<i>Zea mays</i>	leaves infected with <i>Puccinia polysora</i>	scRNA-seq	DNBelab C	2024	Yan et al. ^[87]
Food crop plant	<i>Zea mays</i>	ears	scRNA-seq; spatial RNA-seq	GEXSCOPE; Stereo-seq	2024	Wang et al. ^[88]
Food crop plant	<i>Zea mays</i>	shoot apices	scRNA-seq	10x Genomics	2024	Ma et al. ^[89]
Food crop plant	<i>Zea mays</i>	ear and tassel meristems	scRNA-seq	BD Rhapsody	2024	Sun et al. ^[90]
Food crop plant	<i>Zea mays</i>	endosperms	scRNA-seq	10x Genomics	2024	Yuan et al. ^[91]
Food crop plant	<i>Zea mays</i>	meiocytes and pollen grains	scRNA-seq	CEL-seq2	2023	Washburn et al. ^[92]

Food crop plant	<i>Zea mays</i>	leaves infected with sugarcane mosaic virus	scRNA-seq	10x Genomics	2025	Chen et al. ^[93]
Food crop plant	<i>Zea mays</i>	endosperms	snRNA-seq	10x Genomics	2025	Doll et al. ^[94]
Food crop plant	<i>Zea mays</i>	embryos	scRNA-seq; spatial RNA-seq	10x Genomics; 10x Visium	2025	Wu et al. ^[95]
Horticulture plant	<i>Allium sativum</i>	bulb basal plates	scRNA-seq	10x Genomics	2023	Wang et al. ^[96]
Horticulture plant	<i>Allium sativum</i>	bulbs	scRNA-seq	10x Genomics	2025	Gao et al. ^[97]
Horticulture plant	<i>Amygdalus persica</i>	flower buds	spatial RNA-seq	10x Visium	2025	Zhao et al. ^[98]
Horticulture plant	<i>Brassica campestris</i>	root tips under salt stress	snRNA-seq; snATAC-seq; spatial RNA-seq	DNBelab C; Stereo-seq	2025	Liu et al. ^[99]
Horticulture plant	<i>Brassica rapa</i>	shoot apices and leaves under heat treatment	scRNA-seq	10x Genomics	2022	Sun et al. ^[100]
Horticulture plant	<i>Brassica rapa</i>	young leaves	scRNA-seq	not mentioned	2022	Guo et al. ^[101]
Horticulture plant	<i>Brassica rapa</i>	leaf vasculature	scRNA-seq	not mentioned	2025	Guo et al. ^[102]
Horticulture plant	<i>Brassica rapa</i>	young leaves	scRNA-seq	10x Genomics	2025	Zhang et al. ^[103]
Horticulture plant	<i>Camellia sinensis</i>	leaves	scRNA-seq	10x Genomics	2022	Wang et al. ^[104]
Horticulture plant	<i>Camellia sinensis</i>	root tips	scRNA-seq	10x Genomics	2024	Lin et al. ^[105]
Horticulture plant	<i>Camptotheca acuminata</i>	shoot apices	scRNA-seq	10x Genomics	2024	Wang et al. ^[106]
Horticulture plant	<i>Catharanthus roseus</i>	leaves	scRNA-seq	10x Genomics	2022	Sun et al. ^[107]
Horticulture plant	<i>Catharanthus roseus</i>	young leaves	scRNA-seq	10x Genomics; Drop-seq	2023	Li et al. ^[108]
Horticulture plant	<i>Cucumis sativus</i>	floral buds	spatial RNA-seq	Stereo-seq	2025	Dong et al. ^[109]
Horticulture plant	<i>Dendrobium devonianum</i>	flower buds	scRNA-seq	10x Genomics	2025	Wang et al. ^[110]

Horticulture plant	<i>Dimocarpus longan</i>	embryogenic callus	scRNA-seq	10x Genomics	2023	Zhang et al. ^[111]
Horticulture plant	<i>Euryale ferox</i>	leaves	scRNA-seq	10x Genomics	2025	Liu et al. ^[112]
Horticulture plant	<i>Fragaria vesca</i>	leaves infected with <i>Botrytis cinerea</i>	scRNA-seq	10x Genomics	2022	Bai et al. ^[113]
Horticulture plant	<i>Hylocereus undatus</i>	pericarps	scRNA-seq; spatial RNA-seq	10x Genomics; 10x Visium	2024	Li et al. ^[114]
Horticulture plant	<i>Ipomoea aquatica</i>	root tips under Cd treatment	scRNA-seq	10x Genomics	2025	Shen et al. ^[115]
Horticulture plant	<i>Limonium bicolor</i>	young leaves	scRNA-seq	10x Genomics	2024	Zhao et al. ^[116]
Horticulture plant	<i>Liriodendron chinense</i>	stem-differentiating xylem	scRNA-seq	10x Genomics	2023	Tung et al. ^[117]
Horticulture plant	<i>Litchi chinensis</i>	undetermined resting buds; vegetative buds; floral buds	snRNA-seq	BD Rhapsody	2023	Yang et al. ^[118]
Horticulture plant	<i>Phalaenopsis</i>	inflorescences	spatial RNA-seq	10x Visium	2022	Liu et al. ^[119]
Horticulture plant	<i>Phyllostachys edulis</i>	basal root tips	scRNA-seq	10x Genomics	2023	Cheng et al. ^[120]
Horticulture plant	<i>Prunus mume</i>	petals	scRNA-seq	10x Genomics	2024	Guo et al. ^[121]
Horticulture plant	<i>Rosa hybrida</i>	petals infected with gray mold	scRNA-seq	10x Genomics	2025	Li et al. ^[122]
Horticulture plant	<i>Solanum lycopersicum</i>	shoot-borne root primordia	scRNA-seq	mcSCRB-seq	2022	Omary et al. ^[123]
Horticulture plant	<i>Solanum lycopersicum</i>	calli	spatial RNA-seq; snRNA-seq	Stereo-seq; 10x Visium; 10x Genomics	2023	Song et al. ^[124]
Horticulture plant	<i>Solanum lycopersicum</i>	leaves infected with ToCV	scRNA-seq	10x Genomics	2024	Yue et al. ^[125]
Horticulture plant	<i>Spinacia oleracea</i>	inflorescences	spatial RNA-seq	BMKMANU S1000	2025	You et al. ^[126]

Horticulture plant	<i>Taxus mairei</i>	leaves	scRNA-seq	10x Genomics	2023	Zhan et al. ^[127]
Horticulture plant	<i>Taxus mairei</i>	young stems	scRNA-seq	10x Genomics	2023	Yu et al. ^[128]
Horticulture plant	<i>Tillandsia duratii</i>	leaves	spatial RNA-seq	BMKMANU S1000; Stereo-seq	2024	Lyu et al. ^[129]
Horticulture plant	<i>Trochodendron aralioides</i>	stem-differentiating xylem	scRNA-seq	MARS-seq2.0	2023	Tung et al. ^[117]
Horticulture plant	<i>Vriesea erythrodactylon</i>	roots	spatial RNA-seq	BMKMANU S1000; Stereo-seq	2024	Lyu et al. ^[129]
Economic crop plant	<i>Arachis hypogaea</i>	leaves	scRNA-seq	10x Genomics	2021	Liu et al. ^[130]
Economic crop plant	<i>Arachis hypogaea</i>	roots; stems; hypocotyls	spatial RNA-seq	Stereo-seq	2022	Liu et al. ^[131]
Economic crop plant	<i>Arachis hypogaea</i>	leaves	scRNA-seq	10x Genomics	2023	Du et al. ^[132]
Economic crop plant	<i>Arachis hypogaea</i>	leaves under light and dark induction	scRNA-seq	10x Genomics	2024	Deng et al. ^[133]
Economic crop plant	<i>Arachis hypogaea</i>	leaves	snRNA-seq; snATAC-seq	10x Genomics	2024	Liu et al. ^[134]
Economic crop plant	<i>Arachis hypogaea</i>	peg/pod tips including seeds	snRNA-seq; snATAC-seq	10x Genomics	2024	Cui et al. ^[135]
Economic crop plant	<i>Arachis hypogaea</i>	stems	snRNA-seq	10x Genomics	2025	Wang et al. ^[136]
Economic crop plant	<i>Bombax ceiba</i>	ovary wall	scRNA-seq	10x Genomics	2023	Ding et al. ^[137]
Economic crop plant	<i>Camellia oleifera</i>	ovaries	scRNA-seq	10x Genomics	2024	Zhao and Rong ^[138]
Economic crop plant	<i>Cinnamomum camphora</i>	leaves	scRNA-seq	10x Genomics	2025	Qin et al. ^[139]
Economic crop plant	<i>Glycine max</i>	root nodules	snRNA-seq; spatial RNA-seq	10x Genomics; 10x Visium	2023	Liu et al. ^[140]
Economic crop plant	<i>Glycine max</i>	roots inoculated with <i>Sinorhizobium fredii</i>	snRNA-seq	10x Genomics	2023	Sun et al. ^[141]

Economic crop plant	<i>Glycine max</i>	root; nodule; shoot apex; leaf; stem	snRNA-seq; spatial RNA-seq	DNBelab C; Stereo-seq	2025	Fan et al. ^[142]
Economic crop plant	<i>Glycine max</i>	various tissues	scRNA-seq; scATAC-seq; spatial RNA-seq	10x Genomics; 10x Visium	2025	Zhang et al. ^[143]
Economic crop plant	<i>Gossypium bickii</i>	cotyledons	scRNA-seq	10x Genomics	2023	Sun et al. ^[144]
Economic crop plant	<i>Gossypium hirsutum</i>	ovules	scRNA-seq	10x Genomics	2022	Qin et al. ^[145]
Economic crop plant	<i>Gossypium hirsutum</i>	ovules	scRNA-seq; scATAC-seq	10x Genomics	2023	Wang et al. ^[146]
Economic crop plant	<i>Gossypium hirsutum</i>	hypocotyls of etiolated seedlings	scRNA-seq	10x Genomics	2023	Zhu et al. ^[147]
Economic crop plant	<i>Gossypium hirsutum</i>	leaves	scRNA-seq	10x Genomics	2023	Lin et al. ^[148]
Economic crop plant	<i>Gossypium hirsutum</i>	cotyledons with and without glands	scRNA-seq	not mentioned	2023	Long et al. ^[149]
Economic crop plant	<i>Gossypium hirsutum</i>	calli	scRNA-seq	10x Genomics	2024	Guo et al. ^[150]
Economic crop plant	<i>Gossypium hirsutum</i>	anthers	scRNA-seq; scATAC-seq	10x Genomics	2024	Li et al. ^[151]
Economic crop plant	<i>Gossypium hirsutum</i>	lateral roots under salt stress	scRNA-seq	10x Genomics	2024	Li et al. ^[152]
Economic crop plant	<i>Gossypium hirsutum</i>	ovules	scRNA-seq; spatial RNA-seq	10x Genomics	2025	Zhang et al. ^[153]
Economic crop plant	<i>Gossypium hirsutum</i>	abscission zone from petioles	snRNA-seq	10x Genomics	2025	Zhang et al. ^[154]
Economic crop plant	<i>Gossypium hirsutum</i>	ovules	scRNA-seq	10x Genomics	2025	Chen et al. ^[155]
Economic crop plant	<i>Gossypium hirsutum</i>	fresh bolls; ovules	spatial RNA-seq; scRNA-seq	10x Genomics; 10x Visium	2025	Sun et al. ^[156]

Economic crop plant	<i>Hevea brasiliensis</i>	leaves during early powdery mildew infection	scRNA-seq	10x Genomics	2023	Liang et al. ^[157]
Economic crop plant	<i>Juglans regia</i>	fruit	spatial RNA-seq	BMKMANU S1000	2025	Liu et al. ^[158]
Economic crop plant	<i>Saccharum</i> spp.	buds infected with <i>Sporisorium scitamineum</i>	scRNA-seq	10x Genomics	2025	Zang et al. ^[159]
Forest plant	<i>Eucalyptus grandis</i>	stem-differentiating xylem	scRNA-seq	MARS-seq2.0	2023	Tung et al. ^[117]
Forest plant	<i>Picea abies</i>	female cones	spatial RNA-seq	not mentioned	2017	Giacomello et al. ^[1]
Forest plant	<i>Populus alba</i>	bark; wood	scRNA-seq	10x Genomics	2021	Chen et al. ^[160]
Forest plant	<i>Populus alba</i>	apical buds	scRNA-seq	10x Genomics	2025	Liang et al. ^[161]
Forest plant	<i>Populus alba</i> × <i>Populus glandulosa</i>	xylem	scRNA-seq	10x Genomics	2021	Li et al. ^[162]
Forest plant	<i>Populus alba</i> × <i>Populus glandulosa</i>	stems	spatial RNA-seq	10x Visium	2023	Du et al. ^[163]
Forest plant	<i>Populus alba</i> × <i>Populus glandulosa</i>	stems	snRNA-seq; spatial RNA-seq	10x Genomics; 10x Visium	2024	Zhang et al. ^[164]
Forest plant	<i>Populus alba</i> × <i>Populus tremula</i> var. <i>glandulosa</i>	stem segments	spatial RNA-seq	MKMANU S1000	2024	Lv et al. ^[165]
Forest plant	<i>Populus euramericana</i>	stem internodes	scRNA-seq; spatial RNA-seq	10x Genomics; 10x Visium	2023	Li et al. ^[166]
Forest plant	<i>Populus tremula</i>	leaf buds	spatial RNA-seq	not mentioned	2017	Giacomello et al. ^[1]
Forest plant	<i>Populus tremula</i> × <i>alba</i>	shoot apices	snRNA-seq	10x Genomics	2022	Conde et al. ^[167]

Forest plant	<i>Populus trichocarpa</i>	stems	scRNA-seq	not mentioned	2022	Xie et al. ^[168]
Forest plant	<i>Populus trichocarpa</i>	stem-differentiating xylem	scRNA-seq	10x Genomics	2023	Tung et al. ^[117]

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