

Additional file 1: Table S1

iBeetle-identified genes involved in defensive stink gland function

iBeetle			re-screen categorized phenotype	OGS_# (ass. 5.2)	FC ≥ 2
iB_#	phase	phenotype			
iB_00081	1st	abd gland partially color darker	irregular separation	Tc_000379	x
iB_00105	2nd	both glands darker, abd content decreased	empty/necrotic	Tc_000476	
iB_00110	1st	abd gland size increased	irregular reservoir size	Tc_000504	x
iB_00185	1st	abd color not present and shape irregular	empty/necrotic	Tc_000885	
iB_00414	1st	prothoracic glands partially color darker	secretion color darker	Tc_002616	
iB_00754	1st	abd partially color darker	n.d.	Tc_031464 (Tc_004698)	
iB_01044	1st	abd color darker	irregular separation	Tc_006408	
iB_01236	1st	abd gland size decreased and irregular shape	n.d.	Tc_007650	
iB_01372	1st	abd color darker	irregular separation	Tc_033883 (Tc_008608)	
iB_01440	1st	abd gland color not present	n.d.	Tc_008936	
iB_01644	1st	abd color darker	n.d.	Tc_010033	
iB_01798	1st	abd glands sometimes darker	irregular separation	Tc_011075	
iB_01814	1st	abd glands mostly color darker	n.d.	Tc_011159	
iB_01910	1st	abd glands slightly color darker	n.d.	Tc_011969	
iB_01975	2nd	both glands darker, abd content decreased	secretion color darker	Tc_012387	
iB_02292	1st	abd size decreased and partially color not present	less secretion	Tc_014494	
iB_02297	1st	unspecified alteration	empty/necrotic	Tc_014520	
iB_02301	1st	abd color darker	n.d.	Tc_014544	
iB_02367	1st	abd gland color darker	n.d.	Tc_014967	
iB_02401	1st	abd gland color darker	secretion color darker	Tc_015095	
iB_02416	1st	abd gland partially slightly color darker	irregular separation	Tc_015165	x
iB_02428	1st	abd gland shape and content irregular	irregular separation	Tc_015203	
iB_02471	1st	prothoracic glands partially darker color, abd glands size decreased	irregular reservoir size	Tc_015379	x
iB_02516	1st	glands content darker	melanized	Tc_015811	x
iB_02517	1st	partially content darker	melanized	Tc_030914 (Tc_015817, Tc_015818)	
iB_02542	1st	gland content partially darker	n.d.	Tc_015993	
iB_02563	1st	partially content not present	empty/necrotic	Tc_030950 (Tc_016253, Tc_016254)	
iB_02584	1st	gland content not present	n.d.	Tc_030051	
iB_02625	1st	gland shape irregular	n.d.	Tc_011255	
iB_02627	1st	abd glands partially content not present	less secretion	Tc_011288	
iB_02633	1st	gland shape irregular, content partially not present	n.d.	Tc_031391 (Tc_011371)	
iB_02673	1st	irregular shape, content partially not present	empty/necrotic	Tc_032251 (Tc_000239, Tc_000240)	
iB_02692	1st	abd glands partially content not present	n.d.	Tc_003063	
iB_02716	1st	abd glands mostly content not present, gland shape irregular	empty/necrotic	Tc_031046 and Tc_032493 (Tc_002723)	
iB_02743	2nd	abd gland content partially not present	n.d.	Tc_003968	
iB_02774	2nd	abd gland content darker	secretion color darker	Tc_008303	
iB_02931	1st	abd glands content darker	irregular separation	Tc_031247 (Tc_011810, Tc_011812)	x
iB_03294	2nd	abd gland content darker	secretion color darker	Tc_002074	
iB_03401	1st	glands partially color darker	n.d.	Tc_002550	
iB_03552	1st	gland color darker and partially decreased size	secretion color darker	Tc_032367 (Tc_003409)	x
iB_03637	1st	sometimes gland size increased	n.d.	Tc_003857	

iB_03693	1st	gland size increased	n.d.	Tc_031485 (Tc_004126)	
iB_03695	1st	gland color darker	irregular separation	Tc_004129	
iB_03780	1st	glands darker	n.d.	Tc_031955 (Tc_004533, Tc_004534)	x
iB_03913	1st	abd gland structure necrotic	empty/necrotic	Tc_005167	
iB_04066	1st	abd gland color not present	n.d.	Tc_033952 (Tc_006098)	
iB_04137	1st	abd gland size increased	n.d.	Tc_034081 (Tc_006423)	
iB_04205	1st	abd glands not present	n.d.	Tc_006735	
iB_04420	2nd	abd mostly content decreased	irregular separation	Tc_008047	
iB_04702	2nd	prothoracic glands darker	secretion color darker	Tc_031200 (Tc_009790, Tc_009792)	
iB_04717	2nd	both glands darker and content fragmented	melanized	Tc_009877	
iB_04797	1st	abd gland size decreased and lighter color	colorless	Tc_010251	x
iB_04839	1st	both glands darker	n.d.	Tc_010449	
iB_04850	1st	abd glands partially color darker	n.d.	Tc_010484	
iB_05119	2nd	both glands darker, abd gland size decreased	less secretion	Tc_034419 (Tc_011865)	x
iB_05264	1st	gland content mostly not present	empty/necrotic	Tc_012539	
iB_05278	1st	abd glands mostly content not present	empty/necrotic	Tc_034399 (Tc_012607, Tc_012609, Tc_012610)	
iB_05284	1st	abd glands content slightly darker	n.d.	Tc_034421 (Tc_012641, Tc_012642, Tc_012643, Tc_012644)	
iB_05329	1st	abd glands content darker	irregular separation	Tc_012828	
iB_05331	1st	abd glands partially content not present	less secretion	Tc_012834	
iB_05342	1st	abd glands content darker	n.d.	Tc_012857	
iB_05442	1st	unspecified alteration	colorless	Tc_033122 (Tc_013511, Tc_013513)	x
iB_05518	1st	abd gland color darker	melanized	Tc_032992 (Tc_013892)	
iB_05584	1st	abd glands partially color darker	n.d.	Tc_014205	
iB_05712	1st	abd glands mostly content not present	less secretion	Tc_033471 (Tc_014869, Tc_014870)	
iB_05719	1st	abd glands partially content darker	irregular separation	Tc_014887	
iB_05874	2nd	prothoracic glands darker	n.d.	Tc_015692	
iB_05942	2nd	abd gland size decreased, content darker	n.d.	Tc_031853 (Tc_016013, Tc_016016, Tc_016017, Tc_016018)	
iB_06333	2nd	abd gland content not present	n.d.	Tc_014550	
iB_06359	2nd	abd content decreased and partially darker	secretion color darker	Tc_031191 (Tc_015926, Tc_015905)	
iB_06684	2nd	abd content and size decreased, and abd content darker	n.d.	Tc_034492 (Tc_001853, Tc_001855)	
iB_06779	2nd	prothoracic glands darker	n.d.	Tc_004179	

iB_06806	2nd	glands color darker and content fragmented	melanized	Tc_000393	
iB_06868	2nd	abd gland color darker	n.d.	Tc_003208	
iB_07043	2nd	"stink glands"	less secretion	Tc_003827	
iB_07188	2nd	abd gland size increased, content opaque	n.d.	Tc_032832 (Tc_008176)	
iB_07361	2nd	prothoracic glands darker	melanized	Tc_009459	
iB_07747	2nd	abd content lighter and fragmented	n.d.	Tc_031768 (Tc_010623, Tc_010625)	
iB_07759	2nd	abd gland size and content decreased	n.d.	Tc_030320	
iB_07760	2nd	abd content decreased	n.d.	Tc_031822 (Tc_016034)	
iB_07764	2nd	abd content lighter & fragmented	n.d.	Tc_005075	
iB_07772	2nd	abd content decreased	n.d.	Tc_011144	
iB_07782	2nd	abd gland content spotted and partially darker	n.d.	Tc_006837	
iB_07783	2nd	abd gland content fragmented	n.d.	Tc_031904 (Tc_002154, Tc_002155)	
iB_07900	2nd	abd content lighter	secretion color darker	Tc_001243	
iB_07902	2nd	abd content decreased, fragmented	secretion color darker	Tc_001275	
iB_07917	2nd	abd content decreased, fragmented	n.d.	Tc_000183	
iB_07918	2nd	abd content fragmented or potentially not present	less secretion	Tc_001376	x
iB_07926	2nd	abd content split, lighter color, and size decreased	n.d.	Tc_003231	
iB_08184	2nd	abd gland color darker	less secretion	Tc_032964	
iB_08303	2nd	abd content potentially not present or darker	n.d.	Tc_030655	
iB_08398	2nd	gland color darker, abd content partially not present	secretion color darker	Tc_033206	
iB_08468	2nd	abd gland content not present	secretion color darker	Tc_015328	
iB_08506	2nd	abd gland size and content decreased	less secretion	Tc_015537	
iB_08561	2nd	abd gland size and content decreased	n.d.	Tc_004632	x
iB_08587	2nd	abd gland content not present, size decreased	n.d.	Tc_009420	
iB_08666	2nd	abd size decreased, and content split	n.d.	Tc_009201	
iB_08760	2nd	abd gland content darker	melanized	Tc_033755 (Tc_009924)	
iB_08861	2nd	abd gland color decreased	melanized	Tc_006177	
iB_09043	2nd	both glands color darker, abd gland color not present	colorless	Tc_016314	x
iB_09050	2nd	both glands color darker, abd gland content decreased	less secretion	Tc_033022 (Tc_013879, Tc_013880)	
iB_09103	2nd	abd content darker	melanized	Tc_014482	
iB_09239	2nd	abd gland content and size decreased	less secretion	Tc_008912	
iB_09272	2nd	both gland content color darker, abd gland content not present	n.d.	Tc_006097	
iB_09308	2nd	abd content decreased, not present, or partially darker	n.d.	Tc_005489	
iB_09311	2nd	both glands color darker	n.d.	Tc_006635	
iB_09326	2nd	abd gland content decreased, irregular shape	n.d.	Tc_030081	
iB_09329	2nd	abd gland content not present, glands partially not present	n.d.	Tc_030130	
iB_09337	2nd	both glands color darker	n.d.	Tc_030243	
iB_09340	2nd	abd gland content not present, or darker	n.d.	Tc_032272 (Tc_000166, Tc_030316)	
iB_09355	2nd	both glands color darker	secretion color darker	Tc_006363	
iB_09403	2nd	abd gland content fragmented, abd gland color darker	n.d.	Tc_034170	
iB_09413	2nd	both glands color darker	melanized	Tc_005389	x
iB_09430	2nd	both glands darker and fragmented	secretion color darker	Tc_005306	

iB_09661	2nd	abd glands potentially content decreased	n.d.	Tc_001099	x
iB_09736	2nd	abd gland color decreased	secretion color darker	Tc_003116	
iB_09896	2nd	abd gland content darker	n.d.	Tc_007557	
iB_09910	2nd	abd gland content decreased	n.d.	Tc_007292	
iB_09924	2nd	abd gland content potentially darker	n.d.	Tc_008270	
iB_09988	2nd	abd gland content darker and decreased	less secretion	Tc_014025	
iB_09991	2nd	abd gland color darker	secretion color darker	Tc_014033	
iB_10007	2nd	abd gland content split	n.d.	Tc_033075	
iB_10104	2nd	both glands color darker	secretion color darker	Tc_013627	
iB_10133	2nd	abd gland content potentially not present or decreased	less secretion	Tc_014774	
iB_10156	2nd	abd gland content darker, or content not present	less secretion	Tc_033320 (Tc_015307)	
iB_10159	2nd	abd gland content decreased or not present	secretion color darker	Tc_015429	x
iB_10181	2nd	both glands color darker	secretion color darker	Tc_015547	
iB_10206	2nd	abd gland content decreased or not present	n.d.	Tc_015049	
iB_10701	2nd	abd gland content darker and decreased	melanized	Tc_014985	
iB_10748	2nd	abd gland content not present	n.d.	Tc_007828	

n.d. non detected (= wildtype)

bold confirmed specific gland phenotype

() former gene annotation (ass. 3.0)