

## LD Pairwise Analysis within Gene Regions

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### Overview

LD Analysis is performed on all pairs within a gene region, specified by a user-selected annotation track. The resulting spreadsheet contains values for both the EM and CHM methods and both  $R^2$  and  $D'$  values.

### Recommended Directory Location

Save the script to the following directory:

**\*..\Application Data\Golden Helix SVS\UserScripts\Spreadsheet\Analysis\**

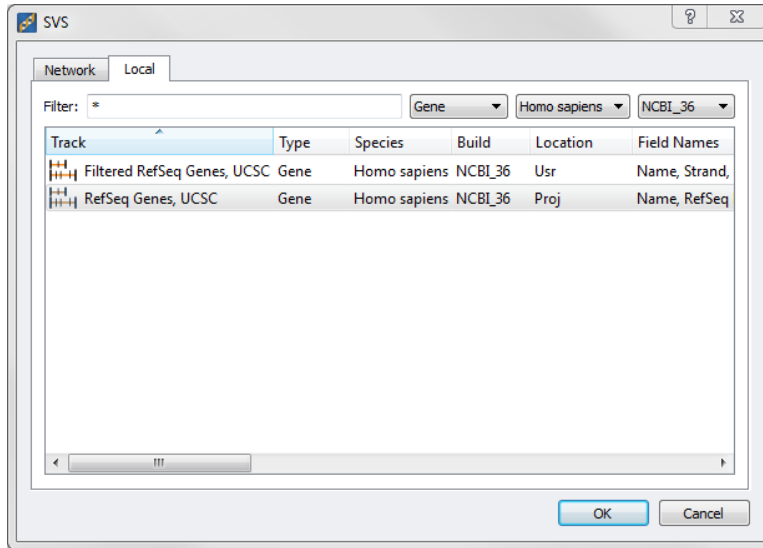
**Note:** The **Application Data** folder is a hidden folder on Windows operating systems and its location varies between XP and Vista. The easiest way to locate this directory on your computer is to open SVS and select the **Tools > Open Folder > UserScripts Folder** menu option. If saved to the proper folder, this script will be accessible from the spreadsheet **Analysis** menu.

### Using the Script

- 1) Open a spreadsheet containing genotype data (possibly including phenotype data and may or may not be marker mapped).

Unsort	R	16	R	17	G	18	G	19	G	20	G	21	G	22
Map	Sample ID	Height (In)	Age	SNP_A-1909444	SNP_A-2237149	SNP_A-4303947	SNP_A-1886933	SNP_A-2236359						
	Chromosome			1	1	1	1	1						
	Position			742429	767376	769185	775852	782343						
	Cytoband			p36.33	p36.33	p36.33	p36.33	p36.33						
1	NA12813	60.27476	55.48754	B_B	B_B	A_A	B_B	B_B						
2	NA12740	67.06439	54.33223	A_B	B_B	A_A	B_B	B_B						
3	NA19193	65.06428	29.11164	A_A	B_B	B_B	A_A	A_B						
4	NA18501	66.4639	46.90015	A_B	B_B	A_B	A_B	A_B						
5	NA12874	55.6836	34.07425	B_B	B_B	A_A	B_B	B_B						
6	NA19154	70.79579	31.26026	A_A	B_B	A_B	A_A	A_B						
7	NA19129	71.88845	32.83759	A_A	B_B	A_B	A_A	A_B						
8	NA12761	74.85801	50.45818	B_B	B_B	A_A	B_B	B_B						
9	NA18537	68.62109	42.67434	A_B	B_B	A_B	A_B	A_B						
10	NA19201	60.72689	52.96835	A_A	B_B	B_B	A_A	B_B						
11	NA12760	63.3528	23.07136	B_B	B_B	A_A	B_B	B_B						
12	NA18998	65.56057	23.33213	B_B	B_B	A_A	B_B	B_B						
13	NA19132	71.94062	29.21608	A_A	B_B	B_B	A_A	B_B						
14	NA06985	67.98739	27.66916	B_B	?	A_A	B_B	B_B						
15	NA10143	65.09484	46.07400	A_A	R_R	R_R	A_A	R_R						

- a) Select **Analysis > LD Pairwise Analysis within Gene Regions**.
- b) Select a gene track that defines the desired gene regions. Click **Select Track**, then navigate to the appropriate track.



**NOTE:** To enhance the speed of the function, we recommend using a local track. If you have not yet downloaded the track to your machine, you can do this from the Annotation Track Manager.

The result is a new spreadsheet with the first two columns listing the markers that were compared (all pair-wise (within gene) comparisons , only listing one occurrence of the pair), the gene, the distance in markers, the distance in kb (if the genotype spreadsheet was marker mapped), both  $R^2$  and  $D'$  values for the EM method and the CHM method.

Unsort	C	1	C	2	I	3	R	4	R	5	R	6	R	7	R	8
Label	Marker 1	Marker 2	Distance in markers	Distance in kb	EM - R Squared	EM - D Prime	CHM - R Squared	CHM - D Prime								
19	SNP_A-205789	SNP_A-2241518	19	107.925	0.032836660869349	0.31372169295354	0.0393442368417157	0.343509363885569								
20	SNP_A-205789	SNP_A-4249414	20	107.957	0.011025070386464	0.535280105491622	0.00725897678881073	0.758956936781553								
21	SNP_A-205789	SNP_A-2067064	21	129.544	0.014289056286833	0.978369868003282	0.01159206143924957	0.87799662245284								
22	SNP_A-205789	SNP_A-1913732	22	129.926	0.0141242111802054	0.977410407860535	0.0112789605075401	0.873355154626512								
23	SNP_A-205789	SNP_A-2026046	23	134.418	0.0141242111802054	0.977410407860535	0.0112789605075401	0.873355154626512								
24	SNP_A-205789	SNP_A-4251849	24	143.653	0.0138524679112468	0.9730744577962629	0.010778686332603	0.858352470042257								
25	SNP_A-205789	SNP_A-4254680	25	145.107	0.0140979882995759	0.97665673994389	0.0111526572988112	0.868665464200792								
26	SNP_A-205789	SNP_A-1836491	26	147.266	0.0136379366703297	0.9823628051233	0.0137460144001237	0.98624705717891								
27	SNP_A-205789	SNP_A-4223773	27	154.134	0.0141242111802054	0.977410407860535	0.0112789605075401	0.873355154626512								
28	SNP_A-205789	SNP_A-2149290	28	154.903	0.0141242111802054	0.977410407860535	0.0112789605075401	0.873355154626512								
29	SNP_A-205789	SNP_A-1838915	29	156.52	0.0514968734109784	0.474663855652549	0.059744093796958	0.511153967523242								
30	SNP_A-205789	SNP_A-1836530	30	163.752	0.0149201052010058	0.97941089915853	0.013375805828589	0.927401427646584								
31	SNP_A-205789	SNP_A-2056328	31	164.351	0.014255451023355	0.977847314300333	0.0113370975078892	0.873311630712922								
32	SNP_A-205789	SNP_A-2052894	32	164.46	0.0489264524934604	0.590906349065138	0.0363293368893923	0.50918491377441								
33	SNP_A-205789	SNP_A-1820470	33	168.575	0.0514579067102755	0.614482602750051	0.0351954699290527	0.508109539910701								
34	SNP_A-205789	SNP_A-4201588	34	176.835	0.051924080765488	0.617932520843885	0.035208287655595	0.508506408799112								
35	SNP_A-205789	SNP_A-2005049	35	183.595	0.009950356630303	0.9518673892162	0.0079937040452801	0.8315439716625								
36	SNP_A-205789	SNP_A-1800897	36	194.847	0.00011316447173746	0.0185312839436728	0.00015487036964644	0.0215100124530124								
37	SNP_A-2032943	SNP_A-2048970	1	6.561	0.179527678745207	0.99947396716339	0.173522027974088	0.982614314060071								
38	SNP_A-2032943	SNP_A-2159364	2	9.194	0.00809708933880188	0.220727609366008	0.0102923389601539	0.248856640702853								
39	SNP_A-2032943	SNP_A-1788959	3	21.138	0.063562383378042	0.99902954242232	0.0777466007744058	1.10488976187192								
40	SNP_A-2032943	SNP_A-2260393	4	27.627	0.0801588187206131	0.999619962339513	0.098820722893977	1.10989853808265								
41	SNP_A-2032943	SNP_A-2272371	5	51.913	0.063888189404851	0.999019049464912	0.0779136058481325	1.10512264246392								
42	SNP_A-2032943	SNP_A-1910767	6	57.026	0.001724852525109944	0.22025441079884	0.0015367342762707	0.195684104818262								
43	SNP_A-2032943	SNP_A-4252261	7	57.212	0.044458802156575	0.99676887245318	0.039740319822175	0.94269347561708								
44	SNP_A-2032943	SNP_A-1938509	8	61.471	0.10948203842384	0.9993062972837	0.157454853799745	1.1985957120924								
45	SNP_A-2032943	SNP_A-2298002	9	66.16	0.0453576400501332	0.997418787888474	0.0418415966584366	0.957980037635631								
46	SNP_A-2032943	SNP_A-1904645	10	68.749	0.0688813934625289	0.660662421712157	0.093803006668592	0.765422089792705								
47	SNP_A-2032943	SNP_A-1802794	11	71.72	0.0930110890479407	0.447022348354232	0.10962602522642	0.485310079685882								