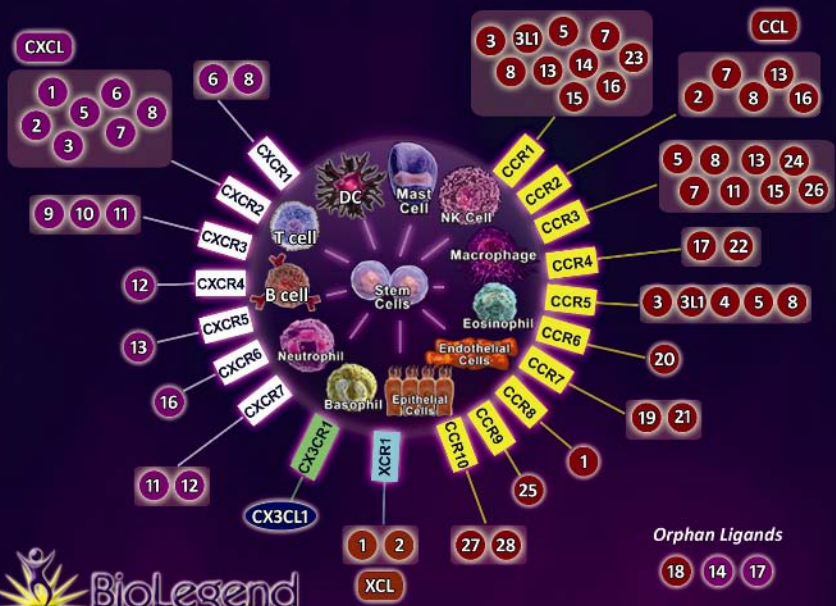


# Towards a Unified System of Protein Classification

from the work of  
Valentin Grabovsky

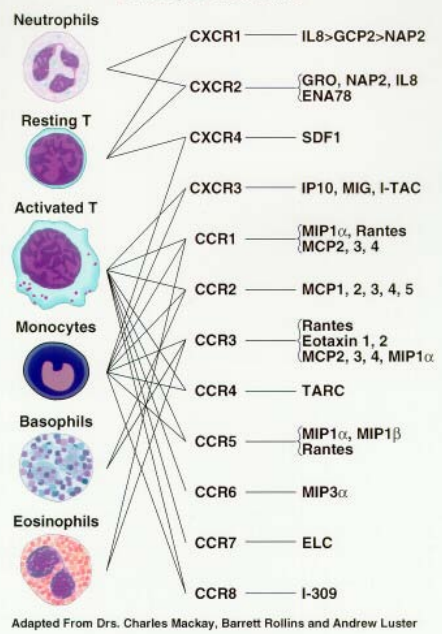
(As hopefully understood by Shifra Ben-Dor)

# The Chemokine Superfamily Circle

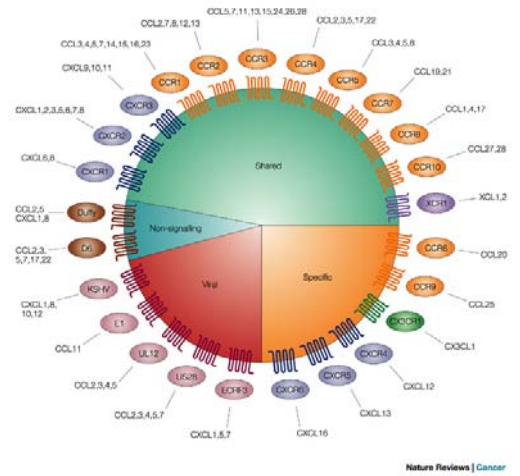


Adapted from Zlotnik, A, et al., 2006. *Genome Biology* 7:243.

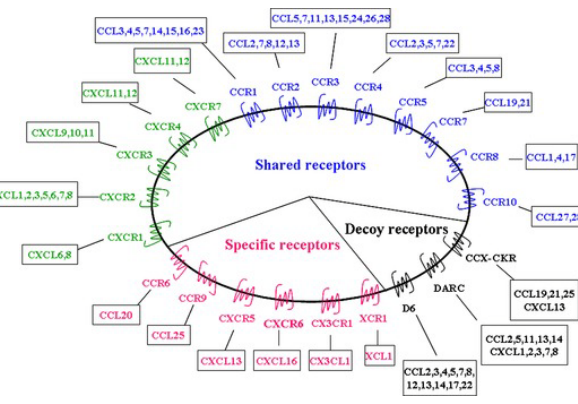
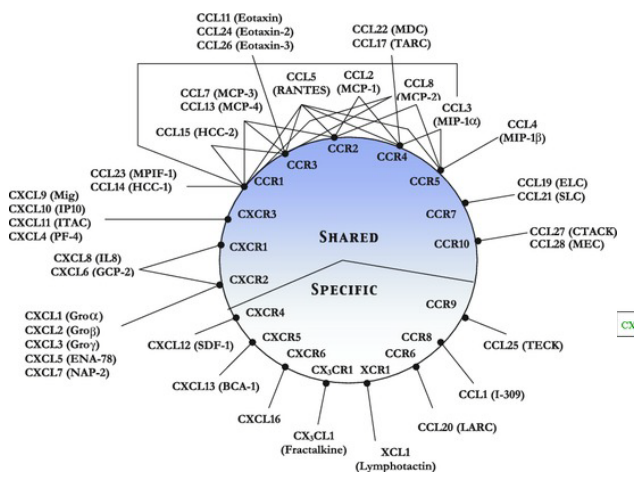
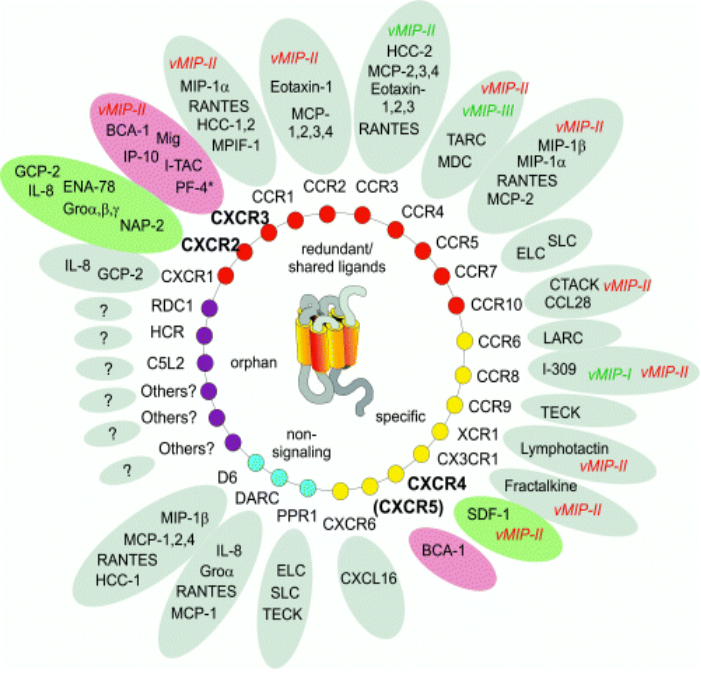
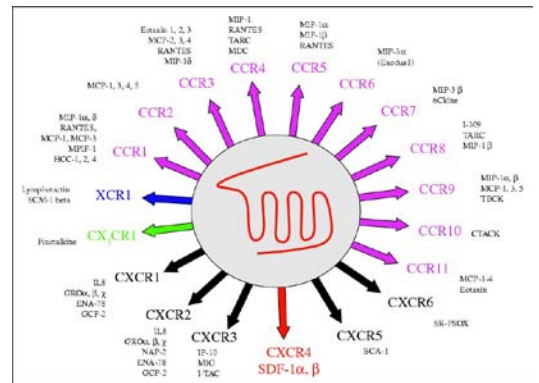
## Chemokines and Receptors for Human Leukocyte Chemotaxis



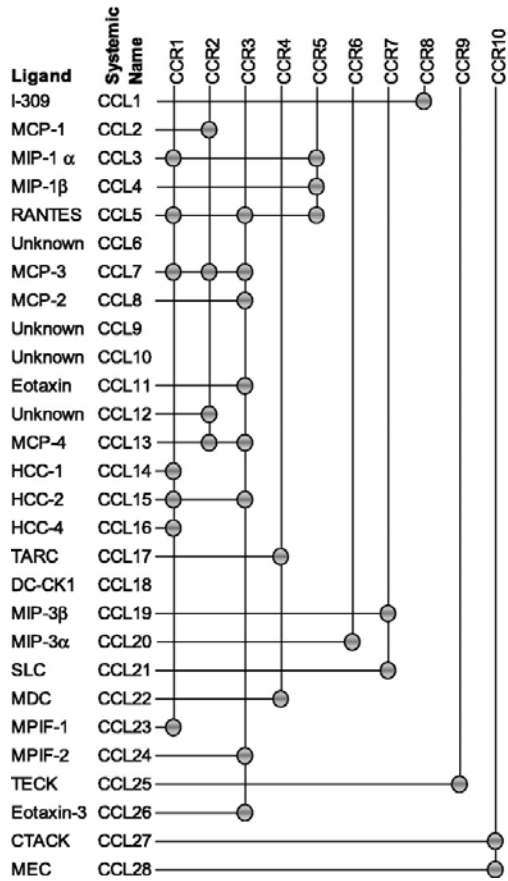
Adapted From Drs. Charles Mackay, Barrett Rollins and Andrew Luster



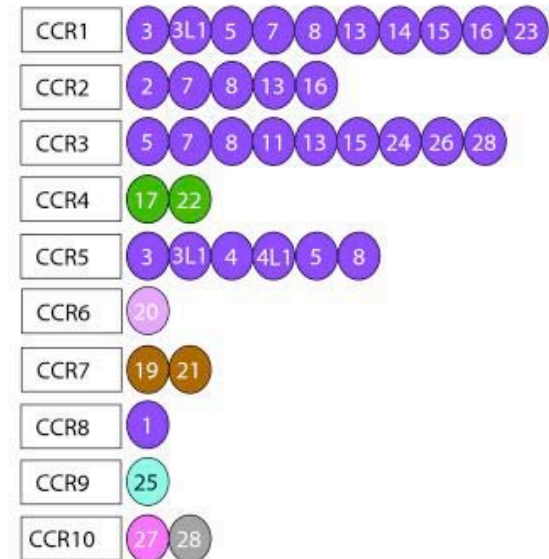
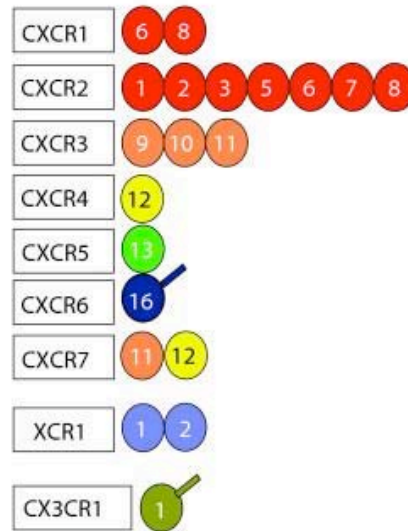
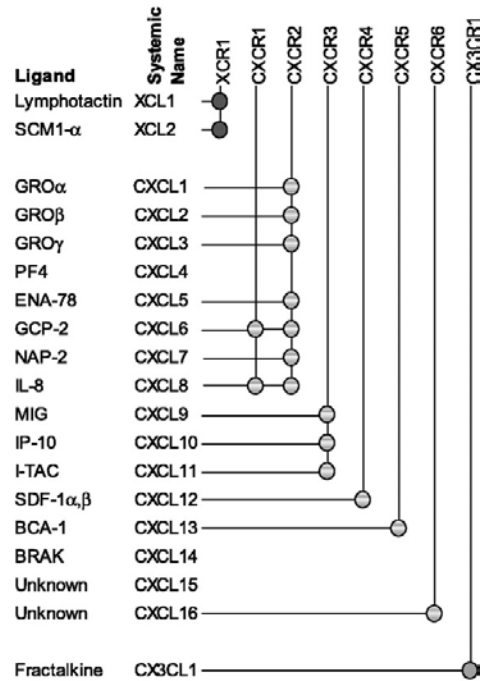
Nature Reviews | Cancer



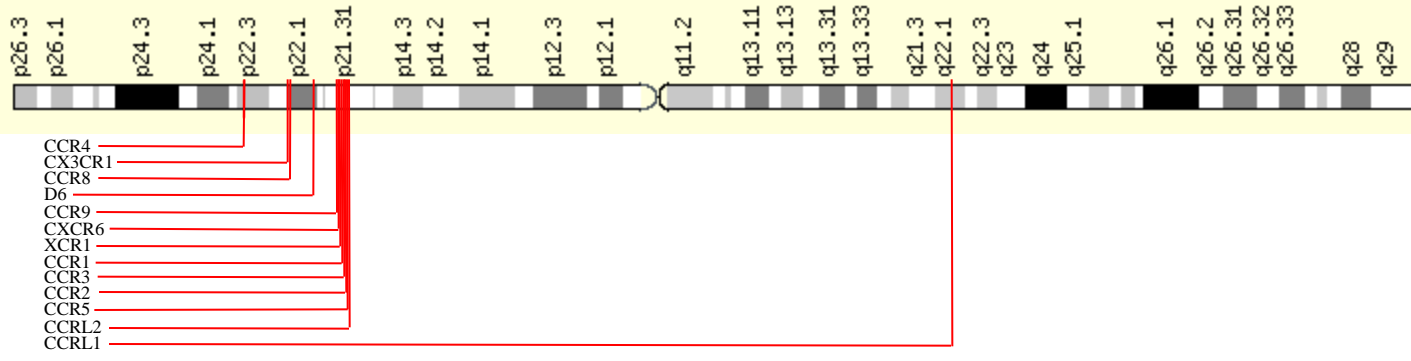
### Chemokine receptors



### Chemokine receptors



Chr 3



# Valentin's Vision:

**Classification** based on the identity of formulas and functions, genetic localization and structural interactions.

Modern science has quite effectively grouped proteins, guided by analogies between their structural and functional properties. However, both within- and cross-group systematization is still far from perfect. This issue may complicate the course of reasoning, the design of the experiments, negate the significance of the results and even contribute to their misinterpretation. Some of these difficulties in analyzing have prompted the search for solving this problem. For this purpose, it was decided to focus the attention on one particular group of proteins and in its example to try to formulate universal principles of classifications.

	2				2						
1	<b>a</b>	<b>a</b>		<b>g</b>		<b>a</b>		<b>g</b>		<b>g</b>	1
		<sup>a</sup> K	K <sup>g</sup>	<u><sup>a</sup>R</u>	<u>R<sup>g</sup></u>	<sup>a</sup> E	E <sup>g</sup>	<sup>a</sup> G	G <sup>g</sup>		
		<sub>t</sub> N	N <sub>c</sub>	<u><sub>t</sub>S</u>	<u>S<sub>c</sub></u>	<sub>t</sub> D	D <sub>c</sub>	<sub>t</sub> G	G <sub>c</sub>		
		<sup>a</sup> I	<b>M<sup>g</sup></b>	<sup>a</sup> T	T <sup>g</sup>	<sup>a</sup> V	V <sup>g</sup>	<sup>a</sup> A	A <sup>g</sup>		
		<sub>t</sub> I	I <sub>c</sub>	<sub>t</sub> T	T <sub>c</sub>	<sub>t</sub> V	V <sub>c</sub>	<sub>t</sub> A	A <sub>c</sub>		
		<b>t</b>		<b>c</b>		<b>t</b>		<b>c</b>			
1	<b>t</b>	<b>a</b>		<b>g</b>		<b>a</b>		<b>g</b>		<b>c</b>	1
		<sup>a</sup> --	-- <sup>g</sup>	<sup>a</sup> --	W <sup>g</sup>	<sup>a</sup> Q	Q <sup>g</sup>	<sup>a</sup> R	R <sup>g</sup>		
		<sub>t</sub> Y	Y <sub>c</sub>	<sub>t</sub> C	C <sub>c</sub>	<sub>t</sub> H	H <sub>c</sub>	<sub>t</sub> R	R <sub>c</sub>		
		<u><sup>a</sup>L</u>	<u>L<sup>g</sup></u>	<sup>a</sup> S	S <sup>g</sup>	<sup>a</sup> L	L <sup>g</sup>	<sup>a</sup> P	P <sup>g</sup>		
		<sub>t</sub> F	F <sub>c</sub>	<sub>t</sub> S	S <sub>c</sub>	<sub>t</sub> L	L <sub>c</sub>	<sub>t</sub> P	P <sub>c</sub>		
		<b>t</b>		<b>c</b>		<b>t</b>		<b>c</b>			
	<b>2</b>				<b>2</b>						

10	9	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8	9	10
					aa	ag	ag		gg	cc	gc	gt	ct	tt					
						cg	tc	ac					tt						
D	E	H	Q	N	K	R	S	T	G	P	A	V	L	F	I	M	C	W	Y

MILPWAVFYSTGCRKNQHDE

				a						g				t					c	
a	K							E										Q		
		N						D				Y						H		
g			<u>R</u>					G				W						R		
			<u>S</u>					G					C					R		
t				M	I					V				<u>L</u>					L	
					I					V				F					L	
c						T				A					S					P

MIFLVAPGTSRKNQHEDYWC

# Valentin's Vision:

“Thus, the order of the genes, that are responsible for the synthesis of amino acid sequences, with structural interactions appropriate to extend to other functional groups of proteins.

Why not to apply this method to other proteins?”

“..... Workshops of experts will develop a classification of all proteins”