SUMMARY OF STUDIES ON FOOD DYES					
Food dye	**Allergic reactions**	**Carcinogenic contaminants**	**Tests for cancer***		**Other**
			Mouse	**Rat**	
Blue 1	Yes		No *in utero* studies. One abstract (study not published) reported kidney tumors.	No tumors in the only good study.	Test tube study found inhibition of nerve-cell development.
Blue 2			Both studies were too brief and did not include *in utero* exposure.	Dosage was likely too low; possible brain and bladder tumors.	
Citrus Red 2 (used only on peels of some oranges at 2 ppm)			Bladder and other tumors	Bladder tumors	
Green 3			The only study did not include *in utero* exposure.	Possible bladder and other tumors	
Orange B (no longer used; in 1978 FDA proposed, but never finalized, a ban)			The only two studies did not include *in utero* exposure.	Toxic	
Red 3 (FDA has banned it from cosmetics, externally applied drugs, and lakes)			The only study did not include *in utero* exposure.	Thyroid tumors	
Red 40	Yes	Aniline	Possible reticuloendothelial tumors of the immune system	No tumors in the only good study	
Yellow 5	Yes	Benzidine, 4-amino-biphenyl	Only mouse study was too brief, used too few mice, and began with 6-week-old mice.	No tumors in the only good study	6 of 11 studies showed genotoxicity. Hyperactivity in children
Yellow 6	Yes	Benzidine, 4-amino-biphenyl	Neither study included *in utero* exposure.	Possible adrenal and testicular tumors.	

In addition, numerous studies have found that mixtures of dyes cause hyperactivity and other behavioral impairments in children.

* Tests should be done on both sexes of two rodent species, use sufficient numbers of animals, include *in utero* exposure, last at least two years after birth, and use maximum-tolerated dosages. Ideally, tests would be conducted by independent labs, but most were conducted by industry.