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A New Strain of Rabbits with Genetically Determined Resistance against Cholesterol-Induced Atherosclerosis

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Unselected New Zealand white rabbits with diet-induced hypercholesterolemia show highly variable degree of aortic atherosclerosis (AS). To separate strains with genetically determined susceptibility for AS, females and males from different litters were paired according to the AS-development of their fathers. Only the offspring with AS < 30 % (after 120 days cholesterol diet) or AS > 70 % (after 80 days diet) were used. After 9 generations of selective breeding two separate strains were obtained displaying different susceptibility to atherosclerosis: strain (H) with high susceptibility(AS 63 SD +- 5,4 %) and strain (L) with low susceptibility (AS 27,5 SD +- 4,8 %). No correlation between AS and plasma cholesterol levels wee observed. Our two strains can serve as a model for biochemical and genetic studies on factors independent from hypercholestolemia that either promote the formation of AS or protect against their development.