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The Short-chain Dehydrogenase/Reductase Gene in Normal and Cloned Bovine Placenta Using an Annealing Control Primer

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Placenta is a main nutrition source for fetus during pregnancy. Thus, it is play a pivotal function for pregnant process during pregnancy. We examined the differentially expressed genes (DEG) between normal and cloned bovine placenta by using annealing control primer (ACP)-based GeneFishing PCR. This technique was used to detect genes that are differentially expressed by using total RNAs isolated from bovine conceptus tissues (placenta) at 280 days of gestation. Using 120 ACPs, about 80 genes were identified and BLAST search revealed genes that related on cell communication, signal transduction, protein metabolism, cell growth and maintenance, immune response, energy pathways, regulation of nucleobase.

At the present, the short-chain dehydrogenase/reductase gene (SDR family) of one of the results of DEGs is reviewing that is known a large gene family with important implications for medicine and functionally diverse proteins expressed in prokaryotes and eukaryotes spanning bacteria to mammals. Although different SDR family members may exhibit amino acid residue identities of only 20~30%, two domains are highly conserved and reflect components of structural and functional significance. SDR proteins mediate metabolism of a wide range of substrates including steroids, flavonoids, retinoids, aldehydes, ketones,

sugars and polycyclic aromatic hydrocarbons and thus may serve to modulate intercellular and intracellular signaling pathways. In the human genome known about 60 genes, they are known to be involved in carci-nogenesis (e.g. breast and prostate cancer) as well as in metabolic and degenerative defects such as the pathogenesis of Alzheimer s disease, osteoporosis and diabetes.

Uncharacterized SDRs are thus potential candidates for many monogenic and multifactorial human diseases. The identification and func-tional analysis of such SDR enzymes is therefore the primary goal of the study leading to new targets for drug development. As this result, we are studying Northern analysis and real-time PCR to confirm expre-ssion of mRNA. If SDR gene was dramatically expressed in the cloned bovine placenta, this gene could be important factor in the several genes.