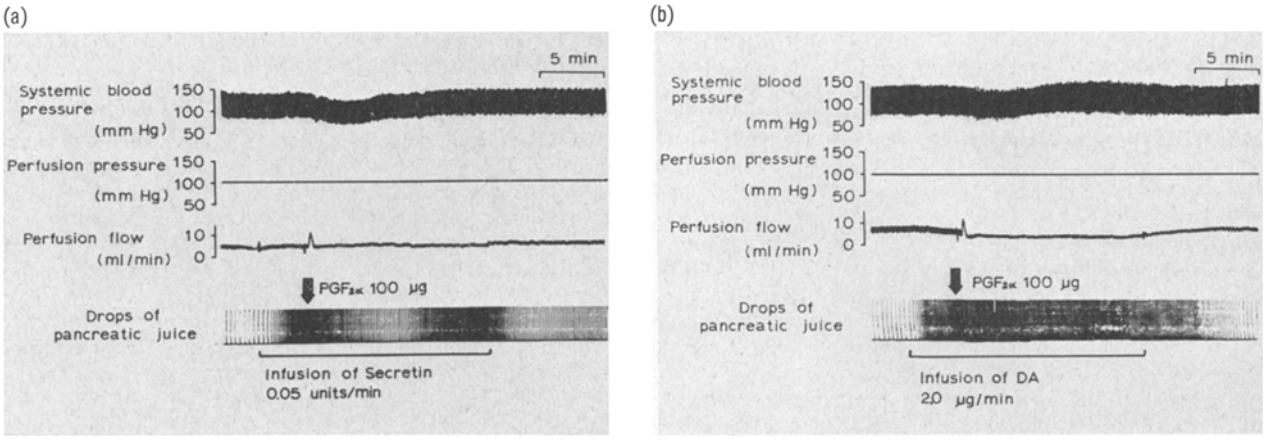

Effect of prostaglandin $F_{2\alpha}$ ($PGF_{2\alpha}$) on the secretion of pancreatic juice induced by secretin (a) and dopamine, DA. (b) The vascular responses to $PGF_{2\alpha}$ were as the same in (a) and (b).

$PGF_{2\alpha}$ was administrated intra-arterially. In some cases, the blood pressure showed diphasic response, first decreased slightly and then increased. On the other hand, dopamine-induced pancreatic secretion (2.0 µg/min) was not inhibited by $PGF_{2\alpha}$ in a dose of 100 µg, but a very high dose over 300 µg of $PGF_{2\alpha}$ slightly inhibited the dopamine-induced pancreatic secretion. The above results indicate that in the blood-perfused canine pancreas $PGF_{2\alpha}$ does not interfere with dopamine induced pancreatic secretion in the same way as with secretin induced secretion.

Zusammenfassung. Die Wirksamkeit von Prostaglandin $F_{2\alpha}$ ($PGF_{2\alpha}$) auf die exokrine Pankreassekretion wurde an einem mit Blut perfundierten Pankreas-Präparat des Hundes untersucht. $PGF_{2\alpha}$ (100 µg) hemmte die durch Sekretin stimulierte, aber nicht die durch Dopamin stimulierte Sekretion.

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Comparative Cytological Study After Prolonged Cultural Regime of Bacteria-free Crown Gall Tumour and its Corresponding Normal Tissue of *Althaea rosea* Isolated from the Same Plant

Material and method. Crown gall and corresponding normal tissue of *Althaea rosea* (Fam. Malvaceae: $2n = 42$) was maintained in modified tobacco medium[1] both in liquid and agar culture methods. For normal tissue the said medium was fortified with 2.4-Dichlorophenoxy acetic acid (0.5 mg/l) and cocoanut milk (15% v/v). Cytological observations were taken at 3-day-intervals. Chromosomes were stained with 1% aceto-carmin solution after being pretreated with saturated *p*-dichlorobenzene for 30 min at 14 °C.

Results and discussion. The distribution pattern of the different ploidy cells was similar in gall and corresponding normal tissues (Table). The percentage of tetraploid were significantly high in comparison to other ploidy cells in both the cell types in different cultural conditions. Aneuploids were significantly ($p < 0.01$) lower in gall tissue cells than the normal counterpart. Minimum chromosome number observed was 14 in both the cell types.

Chromosomal abnormalities such as lagging chromosomes, unequal seperation of chromosomes, bridges at

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Percent distribution of different ploidy cells in *Althaea rosea* gall and normal tissue in liquid and agar cultures

	n	2*n*	3*n*	4*n*	5*n*	6*n*	Aneuploids[a]	Cells with cytological irregularities[b]	Total count
Liquid culture									
Normal tissue	7.07 ± 0.13	19.19 ± 2.10	8.08 ± 1.49	30.25 ± 2.33	7.07 ± 0.13	5.10 ± 0.11	23.24 ± 2.25	20.15 ± 2.14	350
Gall tissue	5.75 ± 0.11	20.00 ± 2.03	5.33 ± 0.11	44.48 ± 2.52	8.58 ± 1.43	4.79 ± 0.10	11.07 ± 1.59	12.50 ± 1.68	387
Agar culture									
Normal tissue	6.13 ± 0.12	21.69 ± 2.06	2.45 ± 0.02	29.36 ± 2.27	6.47 ± 0.12	7.18 ± 0.12	26.72 ± 2.21	18.75 ± 1.94	402
Gall tissue	10.05 ± 1.59	17.32 ± 2.04	6.76 ± 0.13	38.67 ± 2.57	5.17 ± 0.12	6.45 ± 0.13	15.56 ± 1.91	14.25 ± 1.85	358

[a] Including hypohaploid and higher than 6*n* cells. [b] Total percentage of cells with unequal seperation of chromosomes, lagging chromosomes and bridges at anaphase and micronuclei formation at telophase.

anaphase and micro nuclei formation at telophase occured regularly in both the cell types and varied between 17–20%. In about 1.5–2% cells of both the cell types fusion nuclei were observed. Cytological observations made 1 year after tissue isolation showed about 90% preponderance of diploid metaphase. When the culture was maintained for over 12 years, divergency in ploidy of the cell population occurred. Simultaneously there was a shift from predominant diploidy to dominant tetraploidy. Regular occurrence of unequal separation of chromosomes, persistant telophase bridges and fusion nuclei indicate the way in which polyploidization might have occurred in *Althaea* tissue cells. Pre-existing polyploid cells present in the initial explant were also likely to have played a part in upward shift in ploidy level[2].

Crown gall tumour tissues were generally considered cytologically stable material[3] due to the absence of aneuploid cells both in in-vivo[4] and invitro[5] cells. Occurrence of high percentage of aneuploid cells in the present study indicates that *Althaea rosea* crown gall tissue may not be a cytologically stable material.

Zusammenfassung. Kulturen von Tumorgewebe (Crown Gall) und normalen Explantaten von *Althaea rosea* wurden nach mehr als 10jähriger Kultivierung zytologisch verglichen.

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Induction in the Chick by Quail Hensen's Node[1]

It has been well established that the living Hensen's node of the chick blastoderm induces neural differentiation when grafted under competent chick ectoderm (Waddington[2], Woodside[3], Gallera and Castro-Correia[4], Pasternak and McCallion[5], Vakaet[6]). By implanting grafts of primitive streak material in a manner that keeps structures derived from the graft quite separate from the host embryonic axis Gallera[7] was able to analyze the fate of the graft and the degree of its self differention. Similarly, he was able to evaluate the inducing capacity of the graft. These studies, however, were based on chick to chick grafts and, therefore, difficult to distinguish precisely induced and grafted tissues. Since quail cells can be clearly distinguished from chick cells in embryonic associations of tissues of the two species (LeDouarin[8]), we undertook a study of the fate and inductive capacity of Japanese quail Hensen's node in the chick embryo.

The chick embryos used in these experiments were obtained from White Leghorn eggs supplied by the Department of Poultry Science at the University of Guelph, Guelph, Ontario. The Japanese quail (*Coturnix coturnix Japonica*) embryos were obtained from the eggs of birds maintained on our own laboratories. The chick eggs were incubated at 39°C for 14–16 h to obtain stages 3+ to 4 (Hamburger and Hamilton[9]). The quail eggs were similarly incubated to obtain equivalent stages. Chick blastoderms were explanted and cultured at 39°C

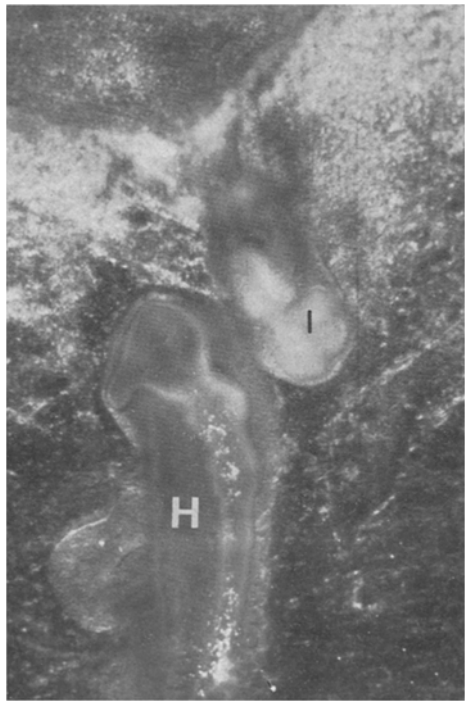

Fig. 1. Photograph of a typical chick host blastoderm (H) on which a graft of quail Hensen's node (I) had been implanted at stage 3+ to 4 showing the results 30 h later.

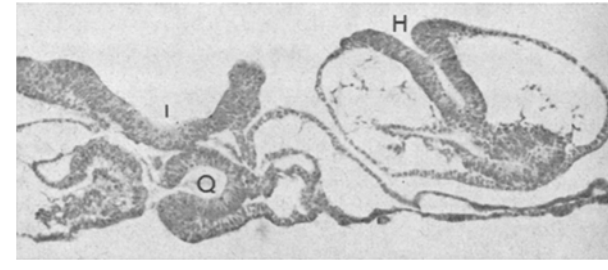

Fig. 2. Cross section of an embryo similar to that in Figure 1, showing the host axis (H), tissues derived from the graft (Q) and induced neural tissue (I). H. & E.

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