Abstract. If the differential expressions P and L are polynomials (over $\mathbb{C}$) of another differential expression they will obviously commute. To have a P which does not arise in this way but satisfies $[P, L] = 0$ is rare. Yet the question of when it happens has received a lot of attention since Lax presented his description of the KdV hierarchy by Lax pairs (P, L). In this paper the question is answered in the case where the given expression L has matrix-valued coefficients which are rational functions bounded at infinity or simply periodic functions bounded at the end of the period strip: if $Ly = zy$ has only meromorphic solutions then there exists a P such that $[P, L] = 0$ while P and L are not both polynomials of any other differential expression. The result is applied to the AKNS hierarchy where $L = JD + Q$ is a first order expression whose coefficients J and Q are 2×2 matrices. It is therefore an elementary exercise to determine whether a given matrix Q with rational or simply periodic coefficients is a stationary solution of an equation in the AKNS hierarchy.